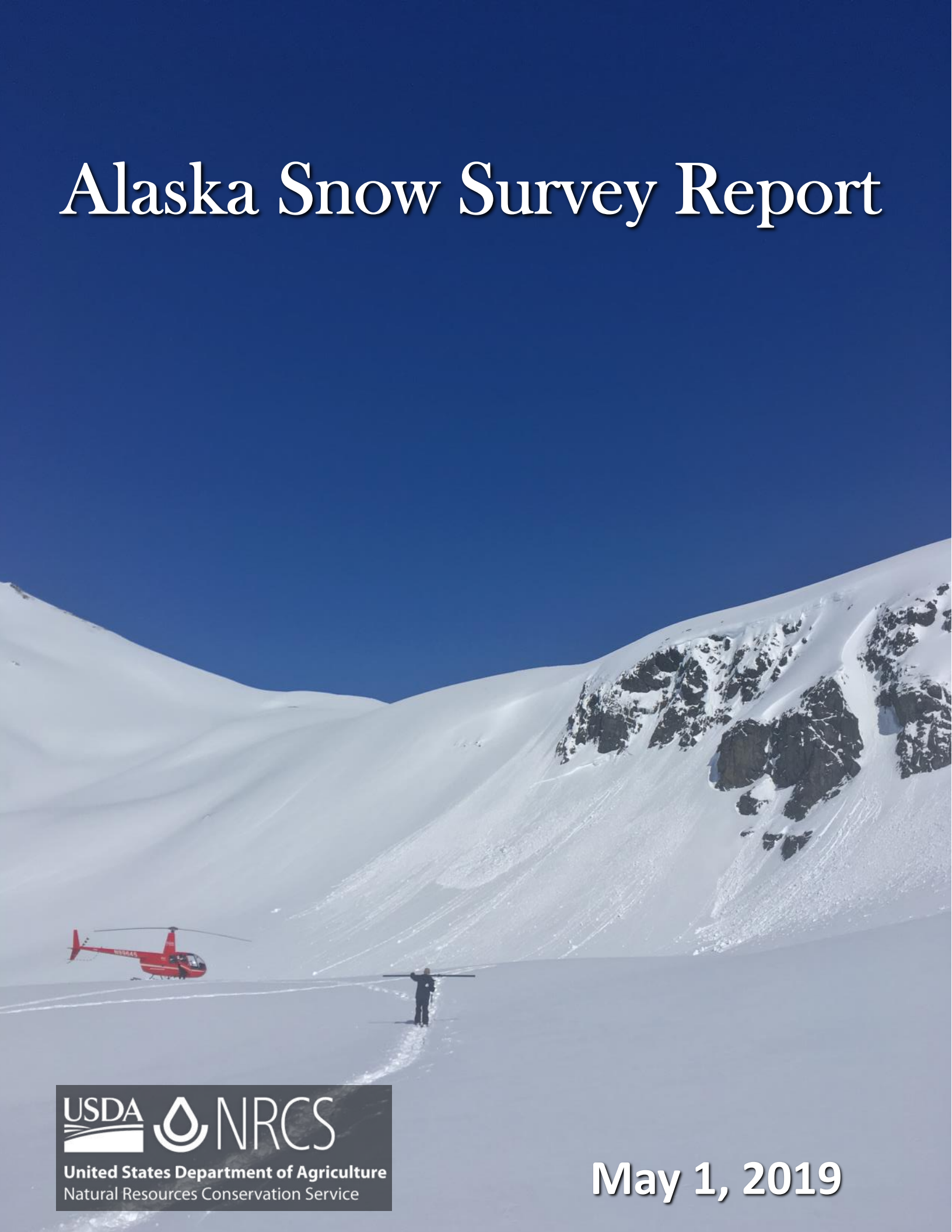
Alaska Snow Survey Report



USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

May 1, 2019

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

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  - 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
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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
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NRCS Natural Resources Conservation Service

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Cover photo: Snow Surveyor, Dan Kenney, snowshoes back to helicopter after measuring a new site, called Lark Valley. Lark Valley is located at 3300' elevation, above Grant Lake on the Kenai Peninsula. The site had approximately 106" of snow with 46" of water content.

Table of Contents

General Overview

SnowPack

Perhaps the only surprise for the May 1st snowpack is that more snowpack hadn't melted out by now. After the record warm March, many locations were primed to melt out 4 weeks ahead of schedule, but April showers (snow showers, that is) brought a slowed thaw and helped many sites hold onto their seasonal snowpacks a little longer. So, instead of being snow-free a month early, now they'll be snow-free 1-2 weeks early.

Painting with a broad brush, the southern half of the state has below normal snowpack, while the northern half has above normal snowpack.

Snowpack just south of the Brooks Range appears to be well above normal from Kotzebue Sound to past the Yukon border. Kelly Station SNOTEL, on the Noatak, along with Bettles and Coldfoot SNOTEL, on the Koyukuk, are all boasting new or next to record highs at 150%-200% of normal.

Snowpack diminishes to the south, where most valley floors have already melted out ahead of schedule. Snowpacks in the mountains were shored up by April storms, however, and delayed melt out by a couple of weeks. Many of these mountain sites were closer to normal by May first than they were at April 1st, but peak snowpack was still early and low in most mountains.

		Basin Index	
		Current	Last Year
Alaska Statewide Snowpack	**# of Sites**	**Percent of Median**	**Percent of Median**
Upper Yukon Basin	30	53	108
Central Yukon Basin	6	136	142
Tanana Basin	22	93	271
Koyukuk Basin	6	147	126
Kuskokwim Basin	1	90	0
Copper Basin	10	82	138
Matanuska-Susitna Basin	15	79	126
Northern Cook Inlet	7	52	47
Kenai Peninsula	18	58	43
Western Gulf of Alaska	10	61	69
Southeast Alaska	7	25	51

General Overview Continued

Precipitation

Precipitation patterns switched between March and April. Much of the eastern half of the state received near or above normal precipitation for the month, while the western side was much drier. Southeast Alaska, which has been drier than normal this winter, had above normal precipitation in March. Similarly, the Tanana Basin and Cook Inlet received above normal precipitation during the month. Northwest Alaska, including the Koyukuk Valley, which has had above normal precipitation for most of the winter, had a dry month and only received half of normal March precipitation. Other parts of the state receiving below normal precipitation include the Copper Basin, and parts of the Susitna Basin and Kenai Peninsula.

Temperature

April brought above normal temperatures across the state, but in much more moderate proportions than March. The Gulf Coast was only nominally above normal for the month. Juneau, Cordova, and Homer were only 2-3°F above normal for the month.

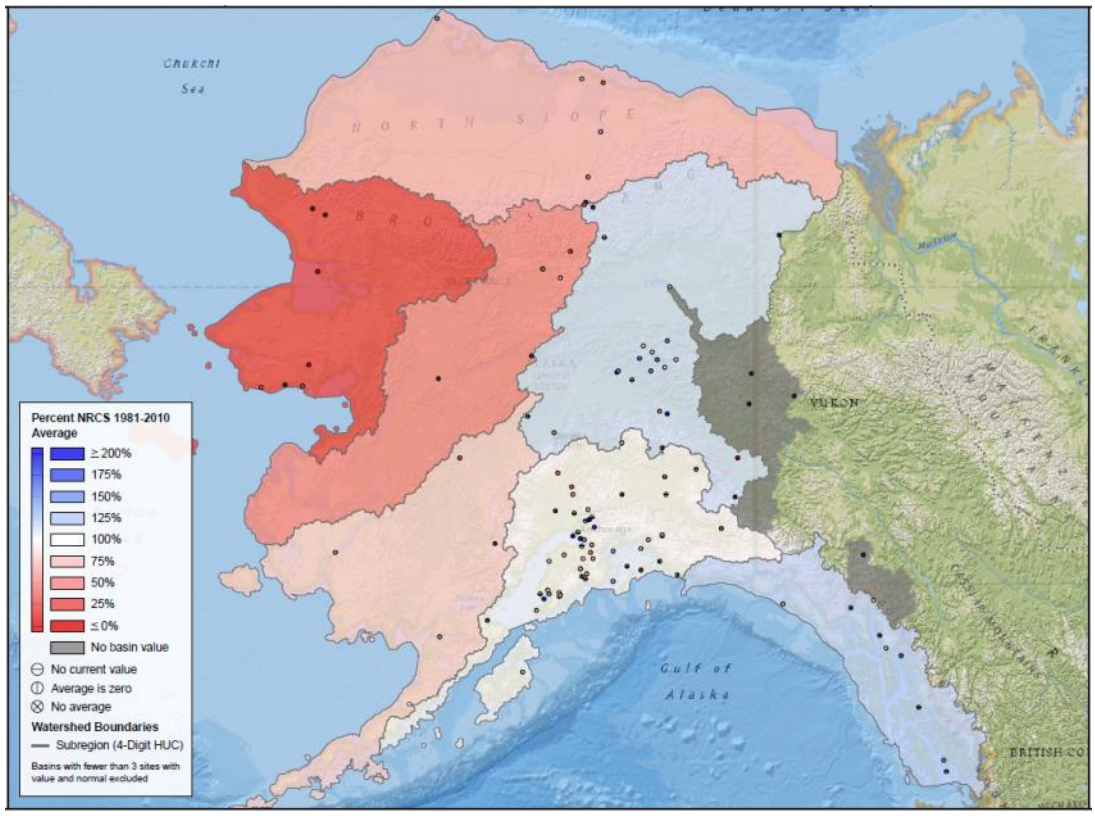
Most of the state experienced monthly temperature averages which were 5-7°F above normal. These include places like Talkeetna, Gulkana, Fairbanks, Bettles and Nome.

Bethel and Utqiaġvik experienced the greatest departures from normal. They were 8°F and 9°F above normal for April, respectively.

Alaska Statewide Precipitation Maps

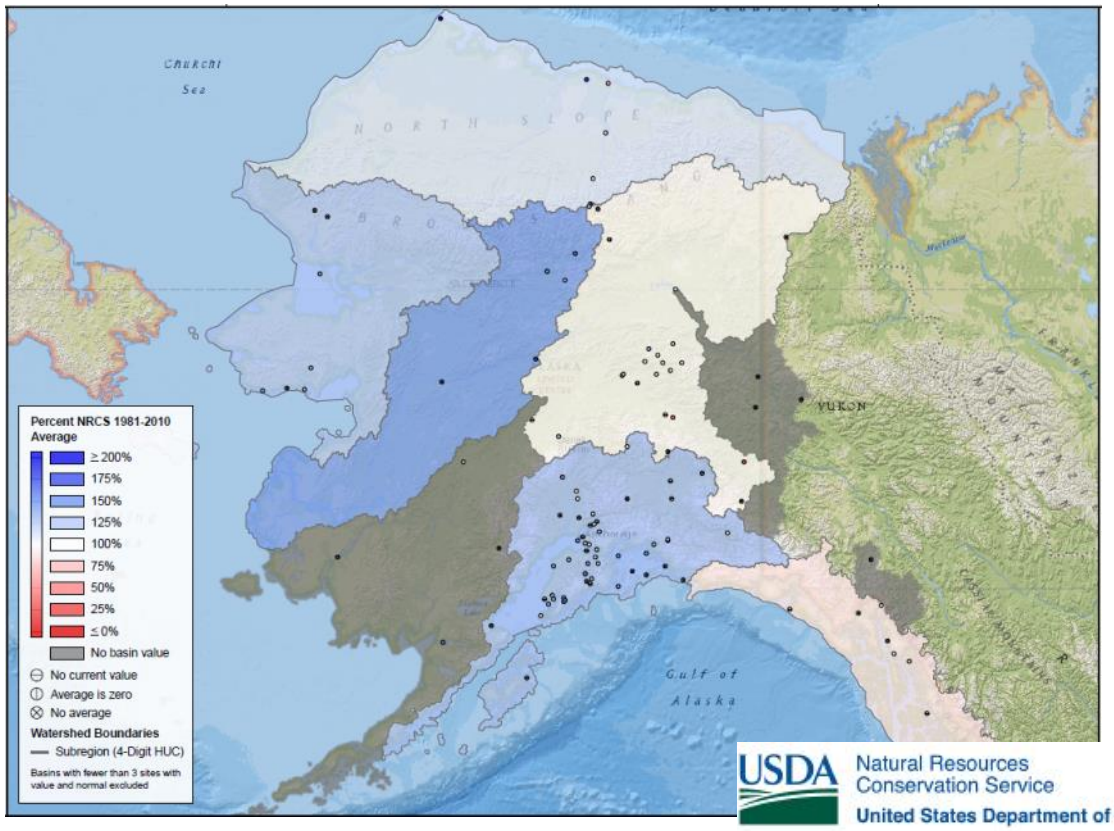
Monthly Precipitation for April, 2019

(% of NRCS 81-2010 Average)



Water Year-to-date Precipitation (Oct. 1-April 30th, 2019)

(% of NRCS 81-2010 Average)



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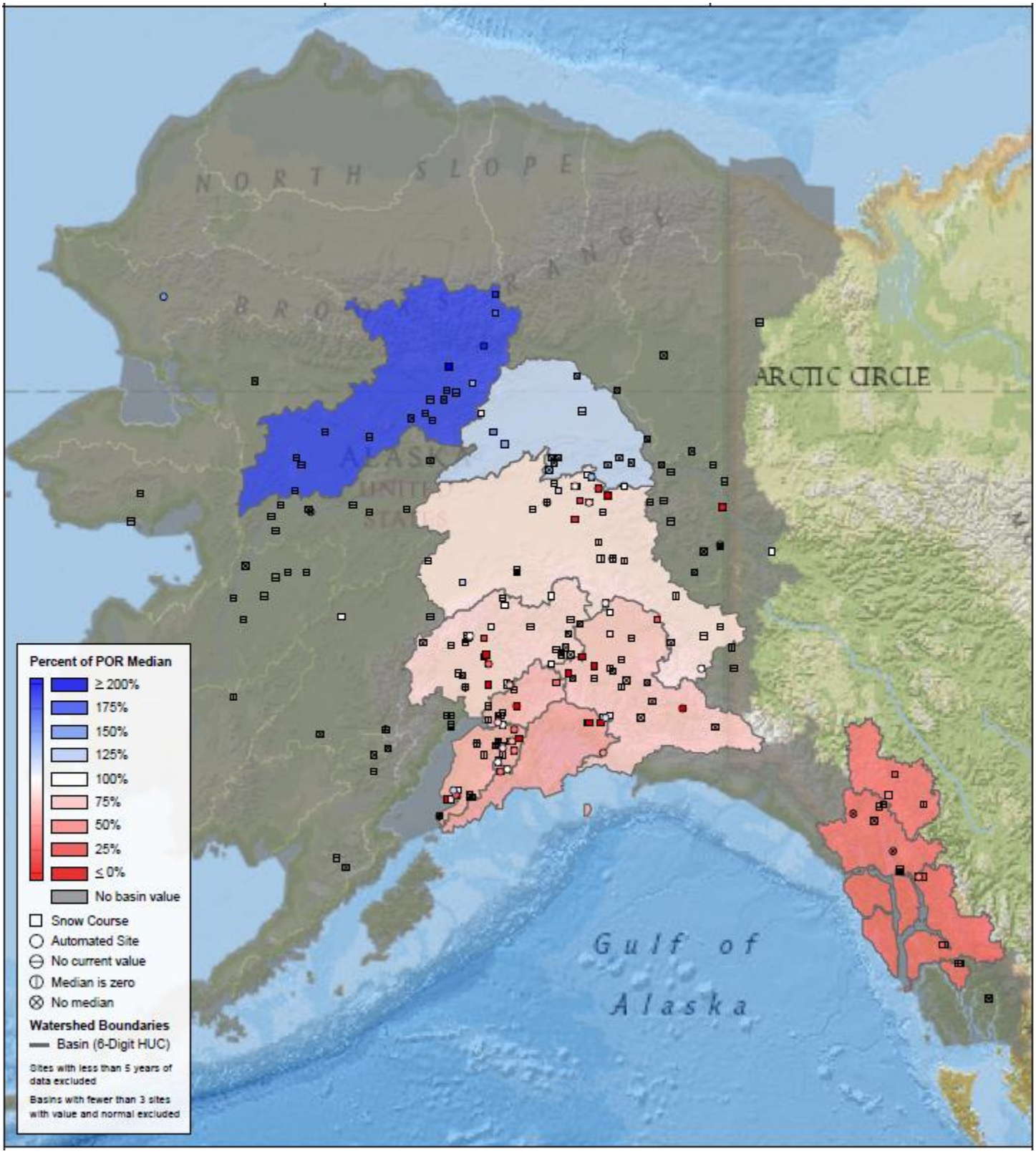
Alaska Statewide Snowpack Map

Based on May 1st, 2019 Snow Water Equivalent



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United States Department of Agriculture

Streamflow Forecasts

FORECAST POINT*	Percent of Ave. Flow	Period
Yukon River at Eagle	80	April - July
Porcupine River nr Int'l Boundary……	95	April - July
Yukon River near Stevens Village	82	April - July
Tanana River at Fairbanks	84	April - July
Tanana River at Nenana	88	April - July
Little Chena River near Fairbanks	83	April - July
Chena River near Two Rivers	87	April - July
Salcha near Salchaket	86	April - July
Kuskokwim River at Crooked Creek	105	April - July
Sagvanirktok River near Pump Station 3	130	April - July
Kuparuk River near Deadhorse	125	April - July
Gulkana River at Sourdough	91	April - July
Little Susitna River near Palmer	90	April - July
Talkeetna River near Talkeetna	93	April - July
Ship Creek near Anchorage	74	April - July
Kenai River at Cooper Landing	85	April - July
Taiya River nr Skagway	82	April - July

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

FORECAST POINT	INDEX
Koyukuk River at Hughes……..	2.3
MF Koyukuk R near Wiseman ……..	2.5
Slate Creek at Coldfoot……..	2.5
Beaver Creek above Victoria Creek……..	—
Birch Creek below South Fork……..	—
Caribou Creek at Chatanika……..	—
Susitna River near Gold Creek……..	-2.5
Chulitna River near Talkeetna……..	-2.0
Deshka River at mouth near Willow……..	-2.5
Montana Creek at Parks Highway……..	-0.5
Willow Creek near Willow……..	-2.0
Skwentna River at Skwentna……..	—
Chuitna River near Tyonek……..	—
Campbell Creek near Spenard……..	-2.5
Indian Creek at Indian……..	-2.5
Bird Creek at Bird Creek ……..	-2.5
Glacier Creek nr Girdwood ……..	-3.0
Six Mile Creek near Hope……..	-2.0
Resurrection Creek near Hope……..	-2.0
Grouse Ck at Grouse Lake Outlet nr Seward ……..	-1.5
Anchor River near Anchor Point ……..	-1.5
Deep Creek near Ninilchik……..	-2.0
Ninilchik River near Ninilchik……..	-1.5
Fritz Creek near Homer……..	-1.5
Skagway River at Skagway……..	-2.5
Municipal Watershed C nr Petersburg ……..	-2.0
Gold Creek near Juneau……..	-2.5

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

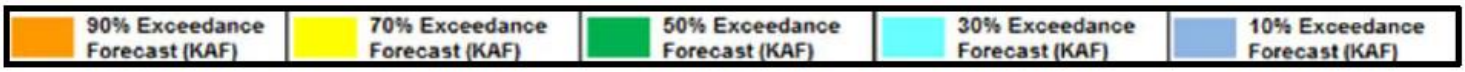
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual 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.

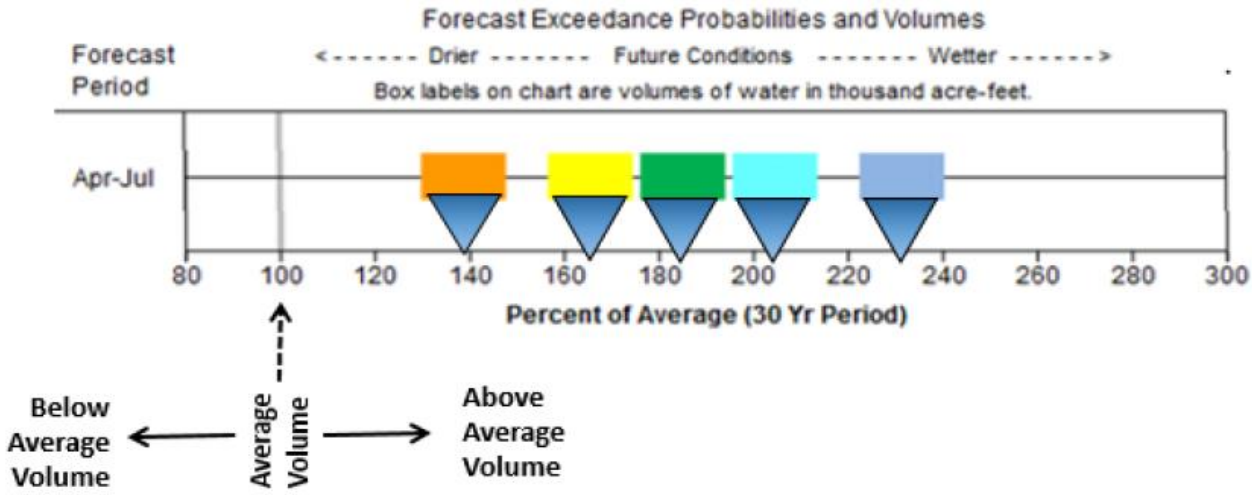
The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast.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

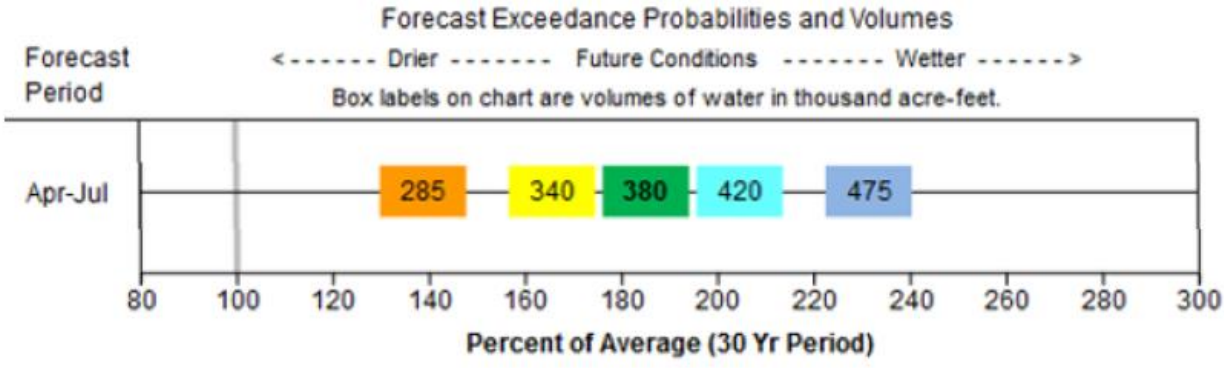
This graphic provides a visual alternative to the forecast tables the NRCS has presented for years. It gives both the volume and percent of average of each of the five forecast exceedances. The five colored boxes represent each forecast's five exceedances.



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.

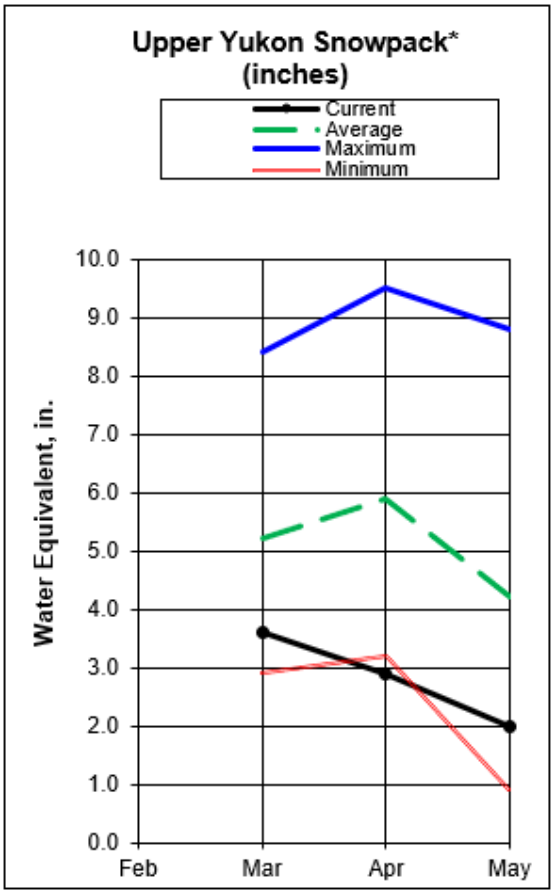


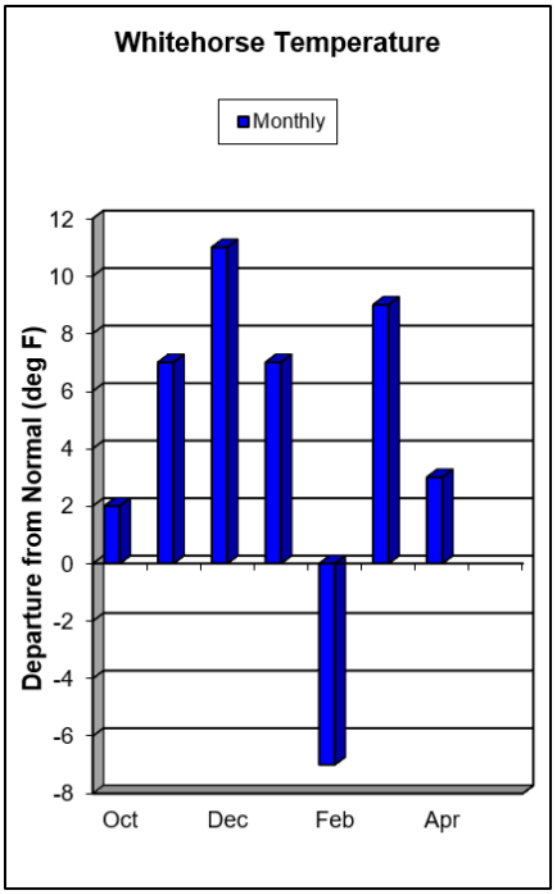
Boxes to the right of the gray 100% of average line represent above average volumes. Conversely, any boxes to the left of the gray 100% line represent below average volumes. In this case all forecast exceedances are for above average April-July volumes. Averages are based on the 1981-2010 period. The 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's continued above normal temperatures hastened melt out in much of the basin. Thirteen of thirty snow monitoring sites were completely melted out by May 1st, compared to one last year. The measured snowpack is less than half of last year and is basically half of normal.

Upper Yukon Basin

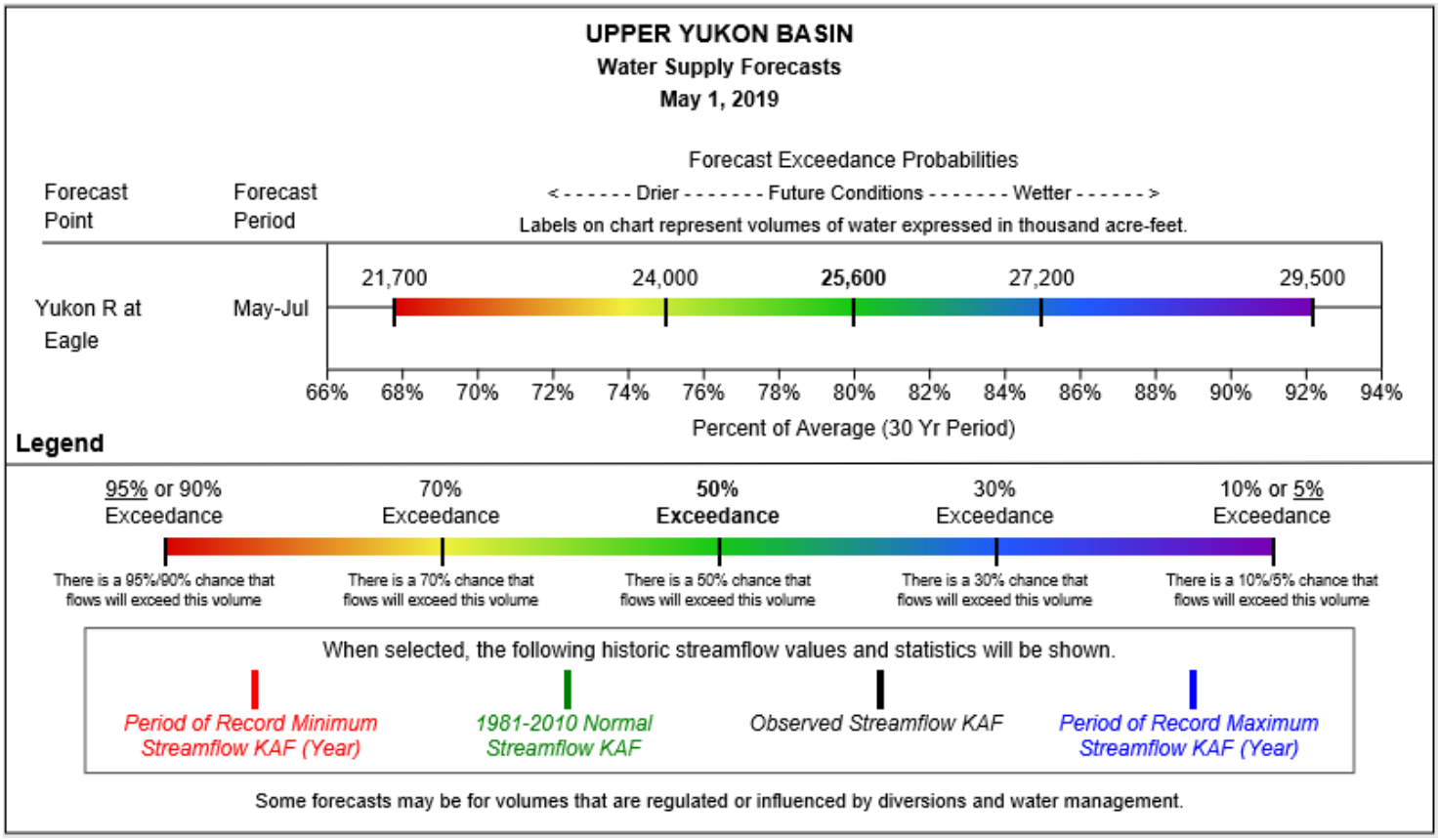
Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Atlin	2395	0	4	0	0.0	1.5	0.0
Beaver Creek	2150	0	4	4	0.0	1.1	0.8
Burns Lake	3650	24	28	27	7.7	5.9	8
Burwash Airstrip	2660	0	5	0	0.0	1.4	0.0
Calumet	4300	13	28	33	3.1	6.7	7.3
Casino Creek	3495	15	32	20	4.1	7.7	4.3
Chair Mountain	3500	---	24	---	---	5.8	---
Duke River	4300	---	---	13	---	---	2.8
Eagle Plains	2330	27	26	18	8.0	8.6	5.1
Eagle River	1115	25	24	17	6.1	5.5	4.0
Edwards Lake	2720	7	20	22	1.7	4.4	6.0
Finlayson Airstrip	3240	6	18	8	1.7	3.6	2.2
Fuller Lake	3695	26	23	27	6.1	5.9	8.1
Grizzly Creek	3200	0	26	22	0.0	7.4	5
Hoole River	3400	---	19	14	---	3.8	3.4
Jordan Lake	3050	---	22	13	---	3.8	3.5
King Solomon Dome	3540	0	26	18	0.0	6.8	5
Log Cabin (B.C.)	2900	20	33	39	7.2	12.6	15.0
Macintosh	3805	0	21	6	0.0	4.7	1.1
Mayo Airport	1770	0	0	0	0.0	0.0	0.0
Meadow Creek	4050	26	35	39	6.5	8.8	11.1
Midnight Dome	2805	22	24	20	5.6	5.8	5.2
Montana Mtn.	3350	4	17	17	1.4	4.4	4.9
Morley Lake	2700	0	12	11	0.0	3.1	3.3
Mt. Berdoe	3395	0	18	10	0.0	4.6	2.0
Mt. Mcintyre B	3600	15	30	20	4.1	7.7	5.4
Mt. Nansen	3350	0	9	0	0.0	2.4	0.0
Pelly Farm	1550	0	2	0	0.0	0.6	0.0
Plata Airstrip	2725	5	15	19	1.7	4.6	5.9
Rackla Lake	3410	24	23	30	6.2	5.0	8
Riffs Ridge	2130	23	25	17	5.6	7	4.7
Rose Creek (Faro)	1080	0	12		0.0	2.6	
Russell Lake	3480	21	32	30	5.4	7.1	9
Satasha Lake	3630	0	14	2	0.0	3.3	0.6
Summit	985	28	25	21	8.6	6.3	6.4
Tagish	3540	10	22	16	3.2	6.4	4.6
Twin Creeks	2950	8	17	20	2.2	4.0	6
Whitehorse Airport	2300	0	15	0	0.0	4.8	0.0
Williams Creek	3000	0	15	6	0.0	3.7	1.9
Withers Lake	3200	20	31	28	5.9	7.2	8.7

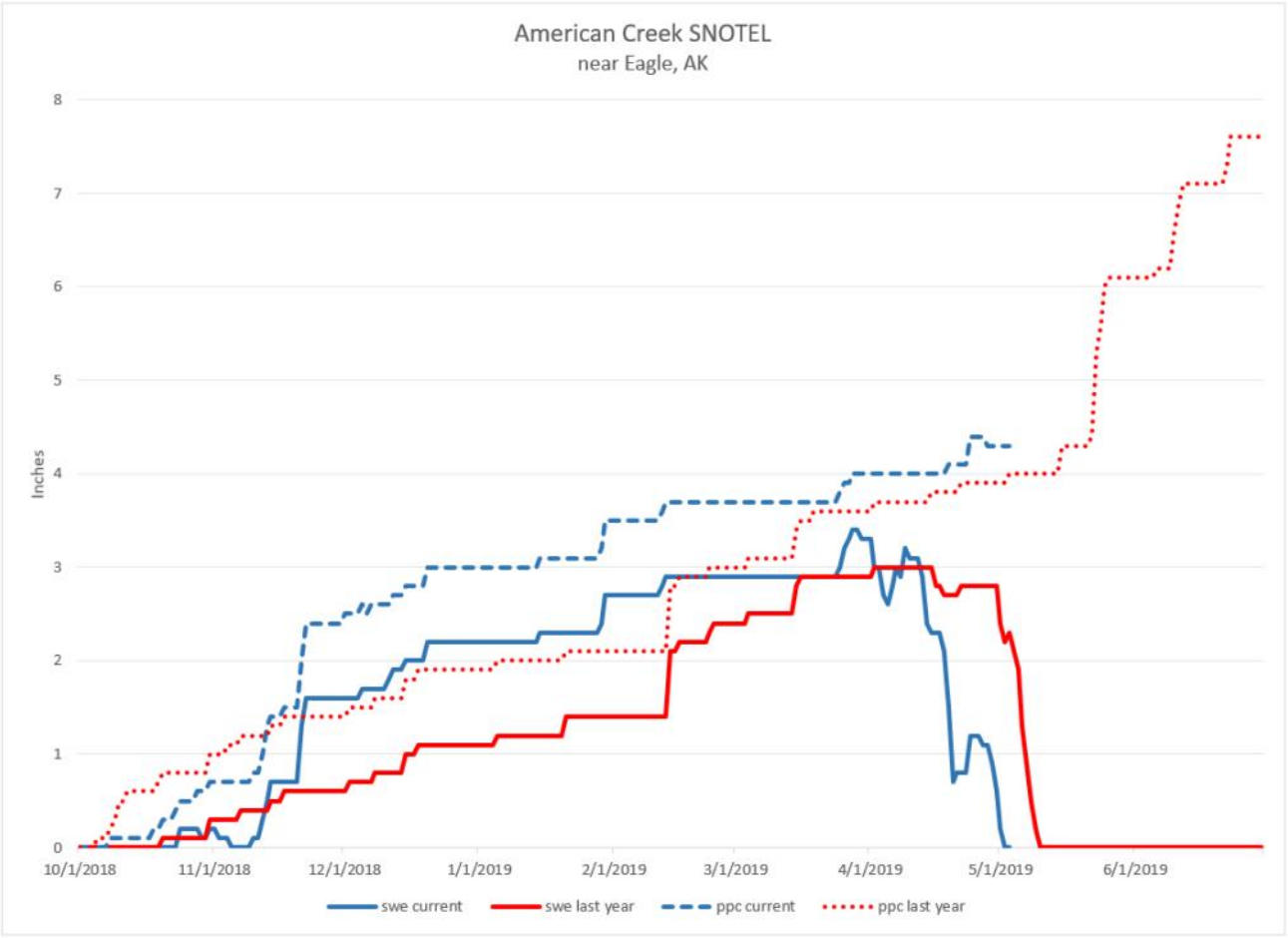
**Estimate*

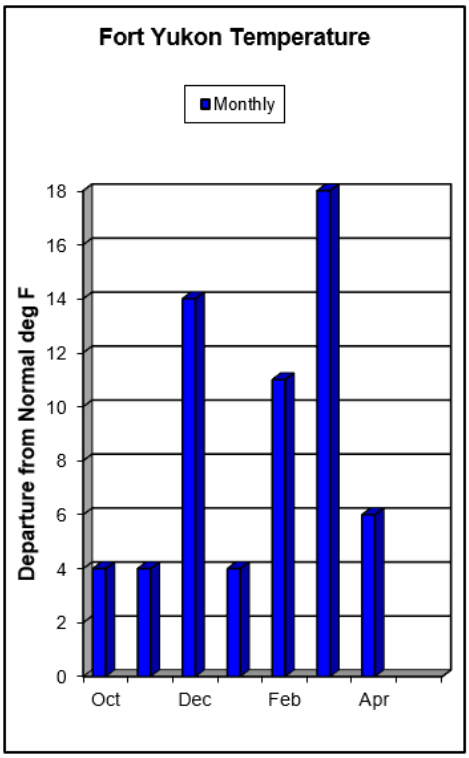
Upper Yukon Basin

Streamflow Forecasts



Central Yukon Basin





Snowpack

The central Yukon basin has generally above normal snowpack. The upper Porcupine River has nearly 150% of normal snowpack as does the northwest part of the basin. The Yukon Flats had less snow and the White Mountains were variable. American Creek SNOTEL, near Eagle, melted out on May 4th, about a week ahead of average. American Creek snowpack peaked a couple of weeks early, but was similar in volume to the last two years.

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	4	10	---	0.2	2.4	---
Eagle Summit	3650	17	24	---	---	---	---
Fort Yukon	430	8	10	---	---	---	---
Hess Creek	1000	21	13	10	5.2	4.0	2.6
Jack Wade Jct	3585	29	26		5.3	5.0	---
Midnight Dome	2805	22	24	20	5.6	5.8	5.2
Old Crow	850	20	15	19	5.7	2.8	4.0
Seven Mile	600	22	9	12	5.3	2.7	3
Thirty Mile	1350	39	32	28	5.6	10	7
Upper Nome Creek	2520	23	43	---	---	---	---

**Estimate*

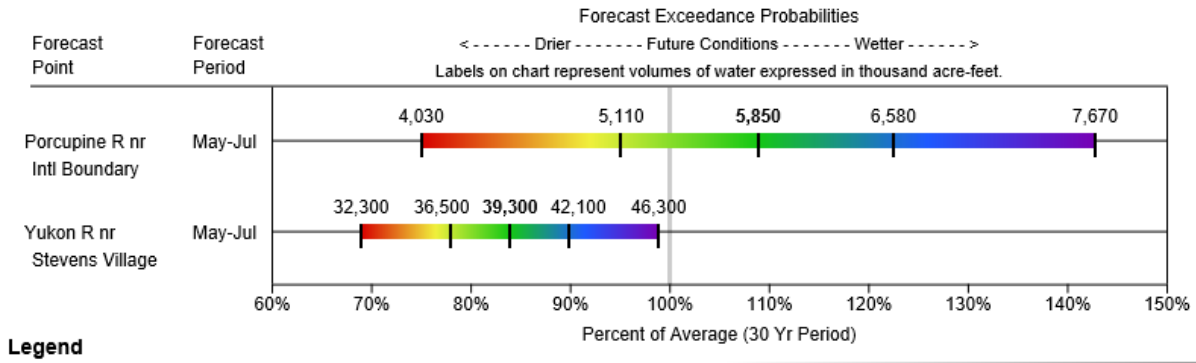
Precipitation

Inches Accumulated since October 1st

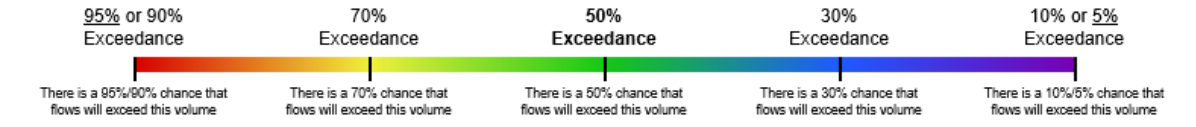
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
American Creek	1050	4.3	3.9	---	---
Atigun Pass	4800	7.6	6.4	6.7	113%
Chandalar Camp	3300	7.8	6.0	5.2	150%
Eagle Summit	3650	5.9	10.0	5.9	100%
Fort Yukon	430	4.1	3.6	3.9	105%
Jack Wade Jct	3585	6.2	4.9	---	---
Upper Nome Creek	2520	8.1	13.4	6.5	125%

Streamflow Forecasts

CENTRAL YUKON BASIN
Water Supply Forecasts
May 1, 2019



Legend

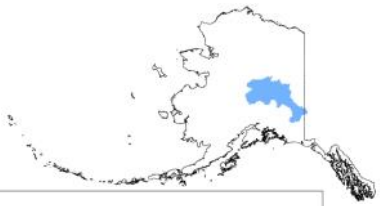


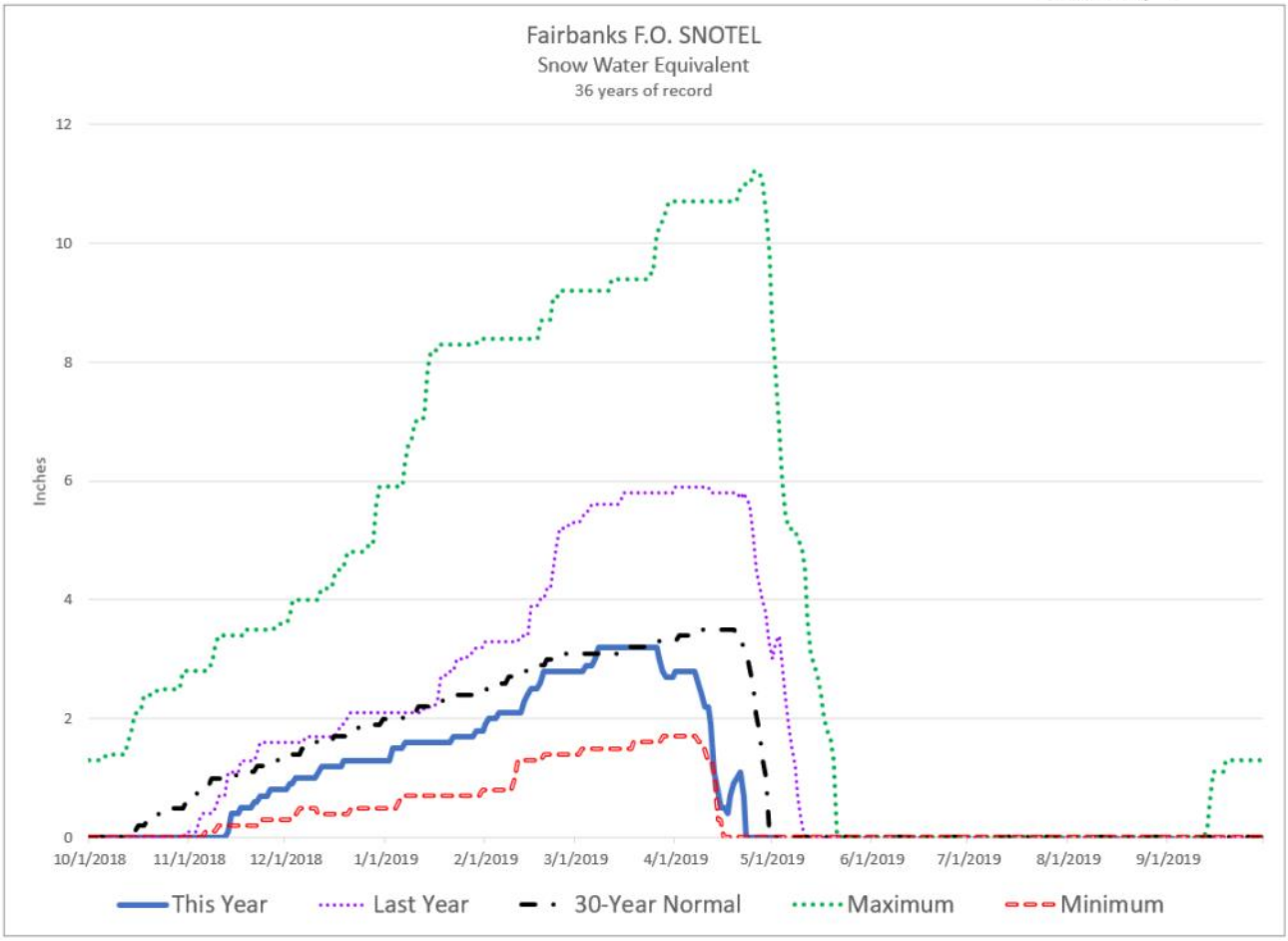
When selected, the following historic streamflow values and statistics will be shown.

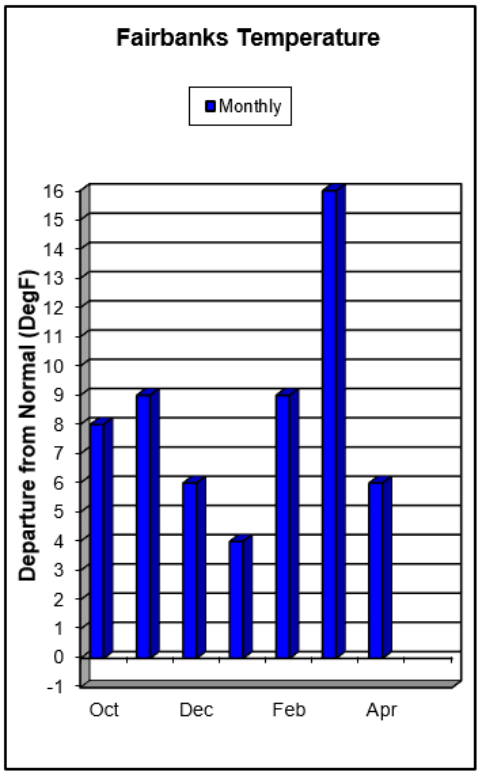
Period of Record Minimum Streamflow KAF (Year) | *1981-2010 Normal Streamflow KAF* | *Observed Streamflow KAF* | *Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Tanana Basin







Snowpack

With few exceptions, the snowpack in the Tanana Valley is below normal. April brought some snow showers, which delayed the rapidly melting snow in the mountains, but did little for the mostly already melted out valley snowpack. Most sites melted out 1-2 weeks early and had less than 80% of normal peak snowpack. Granite Creek SNOTEL, near Delta Junction, never got above 40% normal snowpack this winter. The few sites which do have above normal snowpack are in the most northern part of the basin, in the White Mountains.

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	0	22	0	0.0	7.1	0.0
Caribou Creek	1250	0	14	0	0.0	4.7	0.0
Caribou Snow Pillow	900	0	19	0	0.0	6.1	0.0
Chisana	3320	11	16	---	2.7	4.8	2.8
Cleary Summit	2230	29	46	19	7.1	12.2	4.9
Colorado Creek	700	1	22	4	0.2	6.4	1.0
Fairbanks F.O. SNOTEL	450	0	13	---	0.0	3.0	0.0
Faith Creek	1750	12	29	7	3.2	8.5	2.0
Fielding Lake	3000	27	43	34	7.5	12.1	10.2
Fielding Lake SNOTEL	3000	29	37	---	7.7	10.8	
Fort Greely	1500	0	7	0	0.0	1.6	0.0
French Creek	1800	2	43	13	0.5	13.0	3.6
Gerstle River	1200	0	8	2	0.0	2.0	0.6
Granite Creek SNOTEL	1240	0	4	---	0.0	1.8	0.0
Jatahmund Lake	2180	---	---	0	---	---	0.2
Kantishna	1550	9	34	9	2.5	9.8	2.2
Little Chena Bottom	1100	10	22	8	3.3	7.1	1.7
Little Chena Ridge	2000	12	31	12	4.9	9.2	3.2
Little Chena Ridge SNOTEL	2000	6	30	---	1.8	8.8	2.3
Monument Creek	1850	3	31	10	1.1	9.3	2.4
Monument Creek	1850	2	29		0.3	8.4	2.1
Mt. Ryan SNOTEL	2800	24	41		6.3	10.8	4.7
Mt. Ryan	2800	28	46	20	7.8	13.1	5.0
Munson Ridge	3100	32	60	32	7.4	17.0	9.1
Munson Ridge SNOTEL	3100	28	58	---	7.2	17.2	7.9
Nenana	415	2	3	---	---	---	---
Shaw Creek Flats	980	0	4	0	0.0	0.8	0.0
Teuchet Creek	1640	0	16	6	0.0	5.2	1.8
Teuchet Creek SNOTEL	1640	0	14	---	0.0	5.0	1.3
Tok SCAN	1630	0	0	---	0.0	0.0	---
Tok Junction	1650	0	0	0	0.0	0.0	0.0
Upper Chena Pillow	3000	20	50	21	6.3	15.2	6.0

**Estimate*

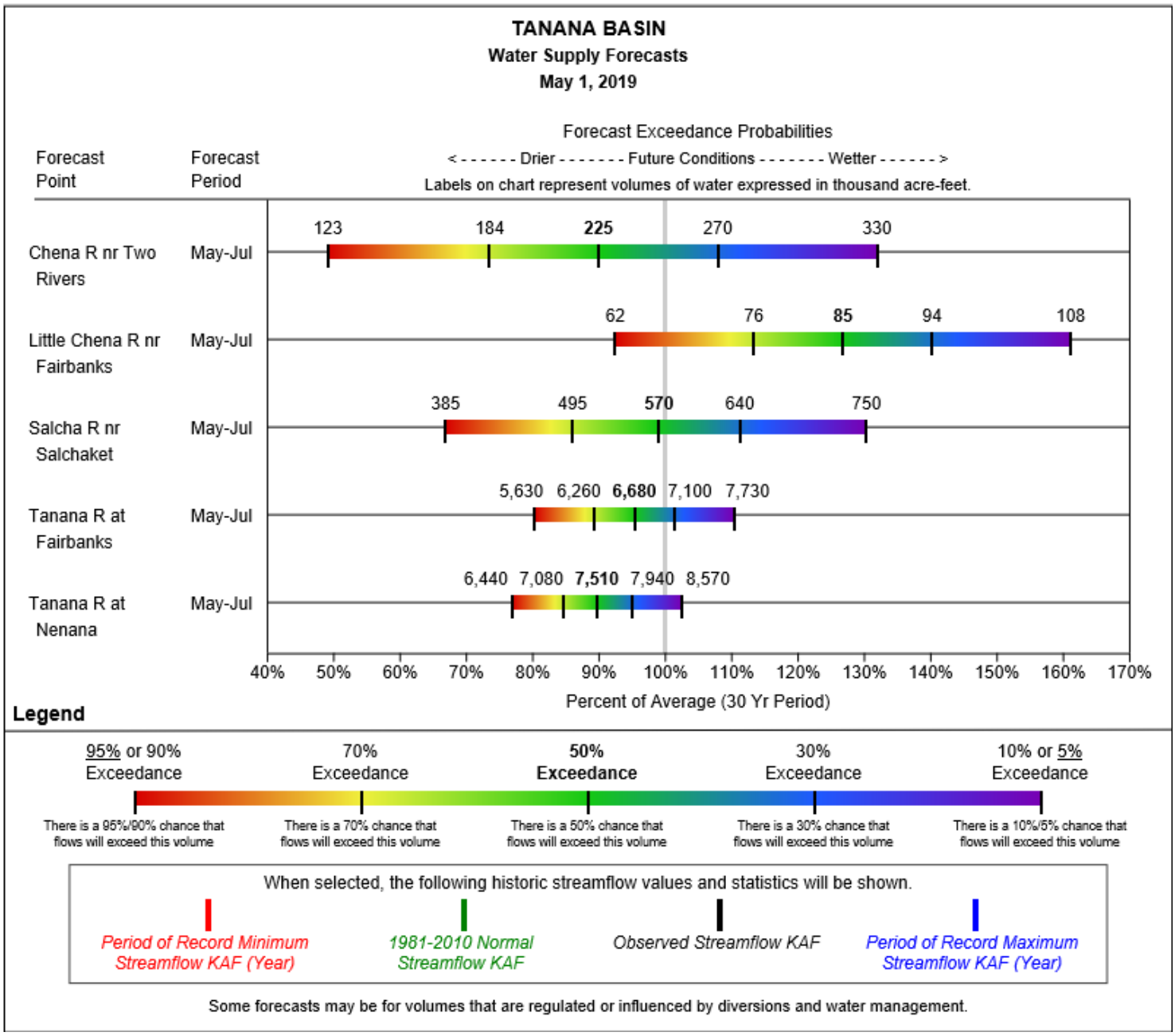
Precipitation

Inches Accumulated since October 1st

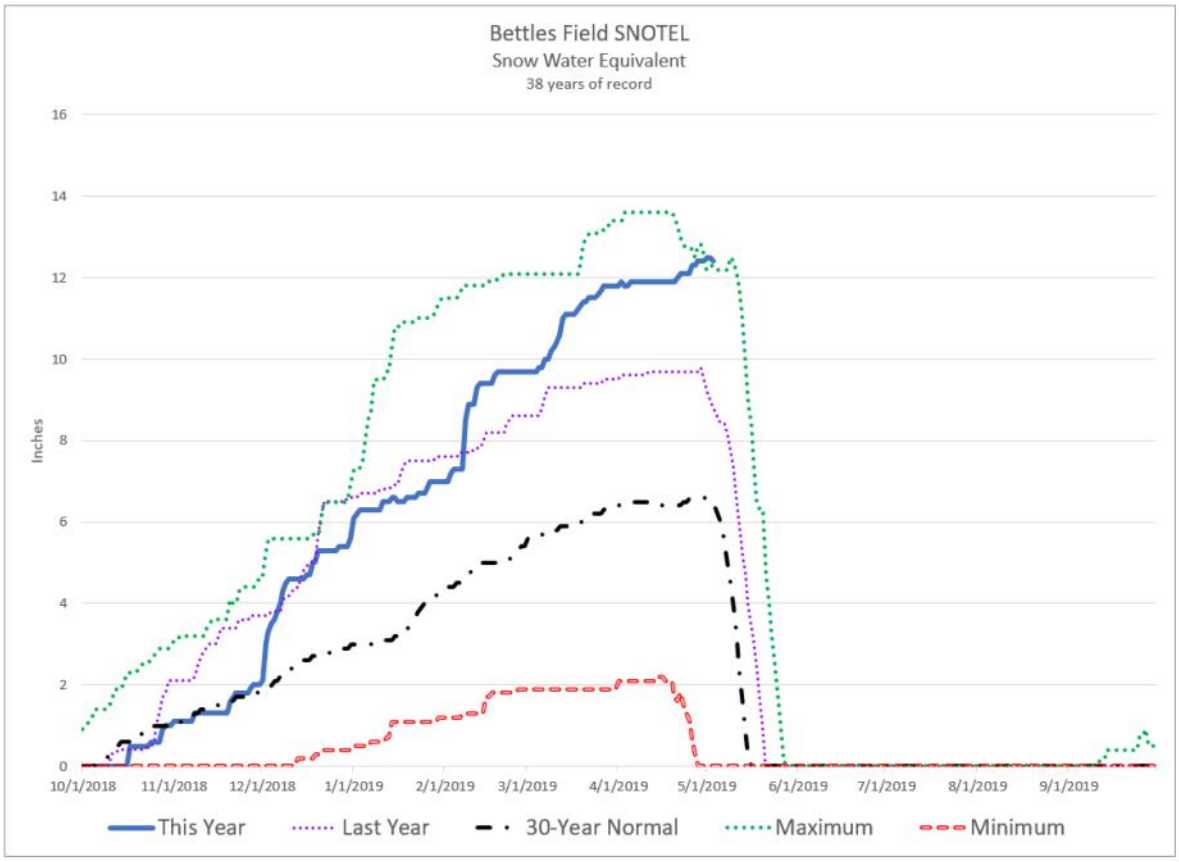
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Chisana	3320	3.8	5.7		
Fairbanks F.O.	450	4.0	8.2	4.9	82%
Granite Crk	1240	2.3	5.2	4.4	52%
Kantishna	1550	5.5	14.0	5.0	110%
Little Chena Ridge	2000	6.1	9.6	6.2	98%
Monument Creek	1850	6.0	10.2	6.1	98%
Mt. Ryan	2800	6.7	10.0	6.3	106%
Munson Ridge	3100	8.2	13.6	8.6	95%
Nenana	415	4.3	5.7	---	---
Teuchet Creek	1640	4.8	7.0	5.0	96%
Tok	1630	2.2	3.2	---	---
Upper Chena	2850	7.5	14.8	7.9	95%

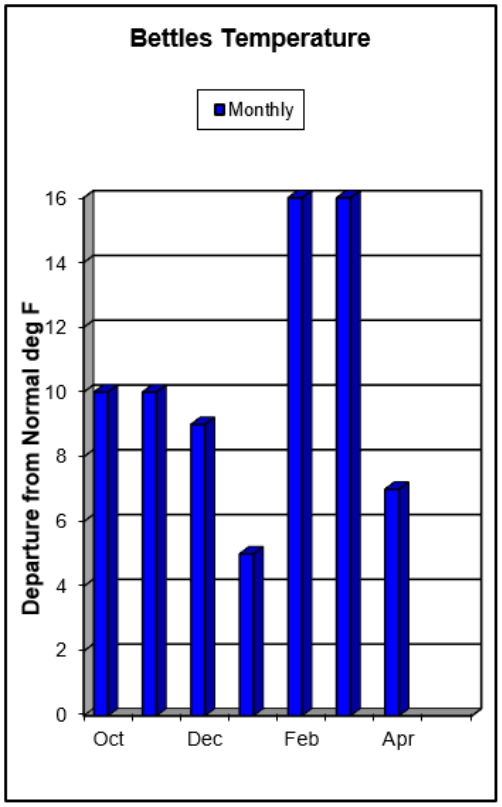
Tanana Basin

Streamflow Forecasts



Western Interior Basins





Snow-pack

Koyukuk

The Koyukuk valley received below normal precipitation during April, but this did little to diminish the robust snowpack in the headwaters. Snowpacks in Bettles and upriver were measured with over 150% of normal snowpack. Snowpack at Bettles is the highest it has measured in its 39-year history. Snowpack melt out appears to have begun right near average with both Bettles and Coldfoot having peak snowpack within a couple of days of normal.

Kuskokwim

The Kuskokwim basin snowpack is most likely somewhat below normal. Lower reaches have melted out and upper reaches appear to be rapidly melting out.

Lower Yukon

The new Galena AK SNOTEL site reached peak snowpack on April 26th with 5.9" of water content and 18" of snow depth and is now quickly melting out.

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	37	24	---	12.5	9.2	6.6
Bonanza Forks	1200	23	13	16	5.7	3.8	4.2
Coldfoot	1040	33	23	---	10.1	8.0	6.1
Disaster Creek	1550	20	11	14	4.8	3.0	3.4
Gobblers Knob	2030	9	16	---	---	---	---
Table Mountain	2200	29	22	20	7.9	5.9	4.8
Kuskokwim							
Aniak	80	0	0	---	0.0	0.0	---
Mcgrath	340	8	0	9	2.7	0.0	3.0
Telaquana Lake SNOTEL	1275	0	0	---	0.0	0.0	---
Lower Yukon							
Galena AK	410	15	---	---	5.2	---	---
Hozatka Lake	206	15	12	---	---	---	---

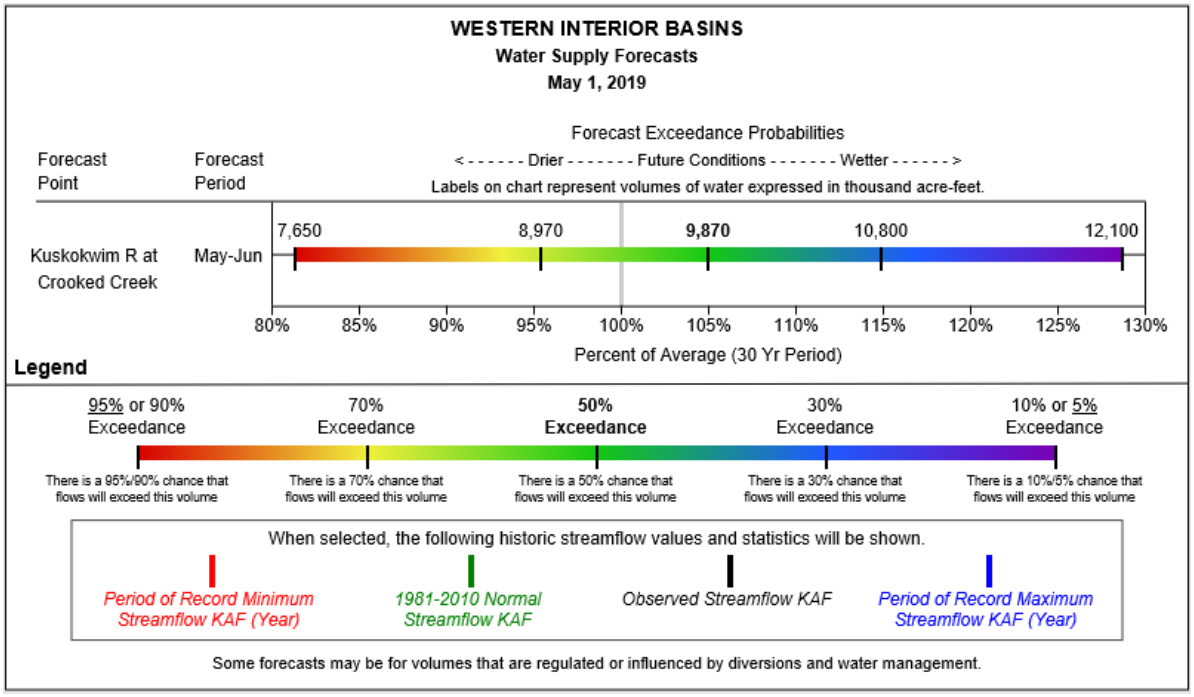
**Estimate*

Precipitation

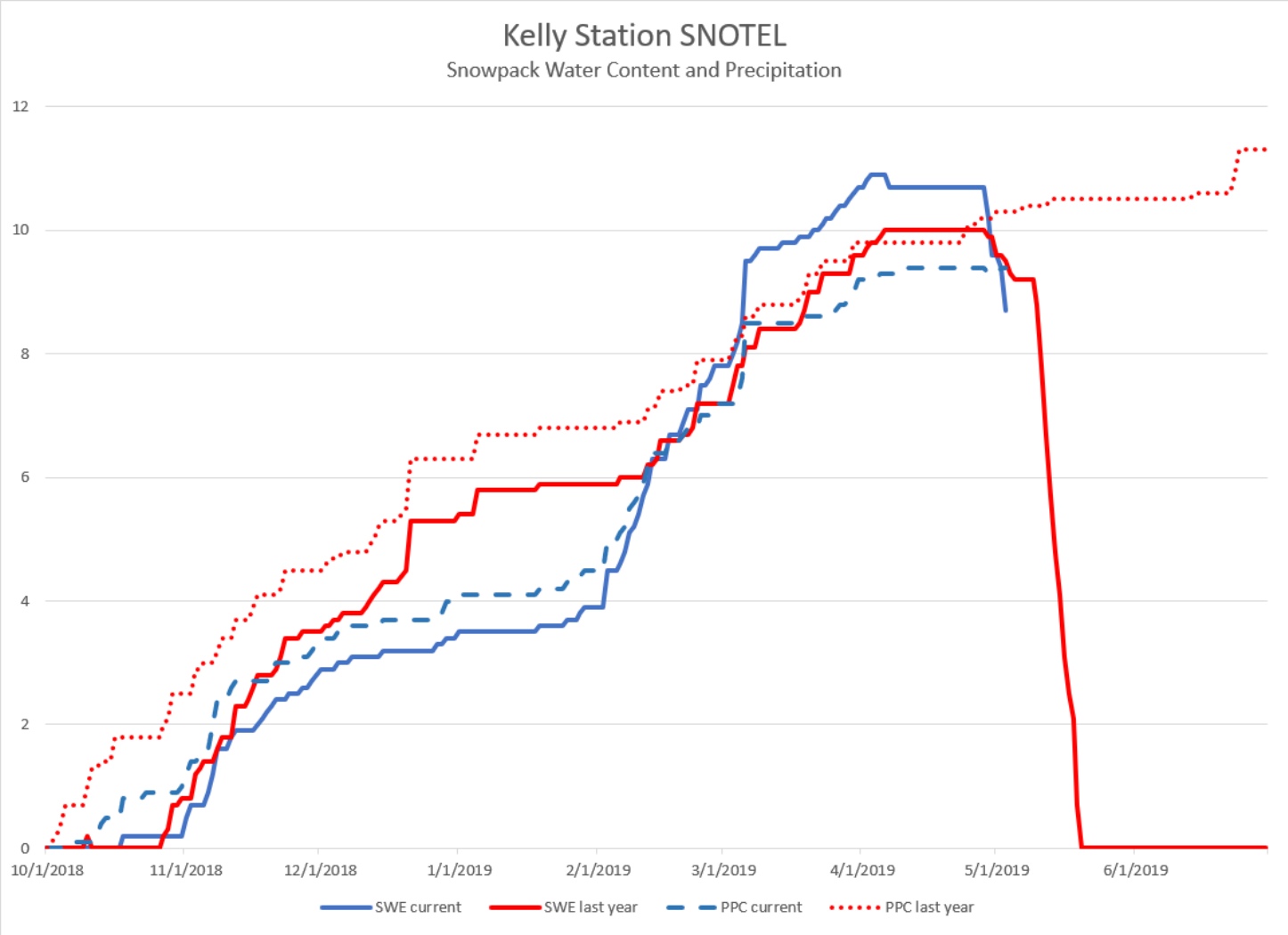
Inches Accumulated since October 1st

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Koyukuk					
Bettles Field	640	10.9	9.2	7.6	143%
Coldfoot	1040	11.6	8.2	7.3	159%
Gobblers Knob	2030	10.3	9.8	7.6	136%
Kuskokwim					
Aniak	80	10.0	13.2	---	---
Telaquana Lake	1275	7.2	10.9	---	---
Lower Yukon					
Galena AK	410	6.4	---	---	---
Hozatka Lake	206	7.1	8.1	---	---

Streamflow Forecasts



Arctic and Kotzebue Sound



Snowpack

Arctic

The Arctic had below normal amounts of precipitation this month, but still has had above normal amounts for this winter.

Kotzebue

Northwest Alaska had below normal precipitation during April. Snowpack here remains robust, but has started to melt out. Kelly Station SNOTEL, along the Noatak, experienced peak snowpack on April 4th, but didn't start to melt out until April 28th. Its May 1st reading was its highest in its seven-year record.

Arctic and Kotzebue Sound

Snowpack Data

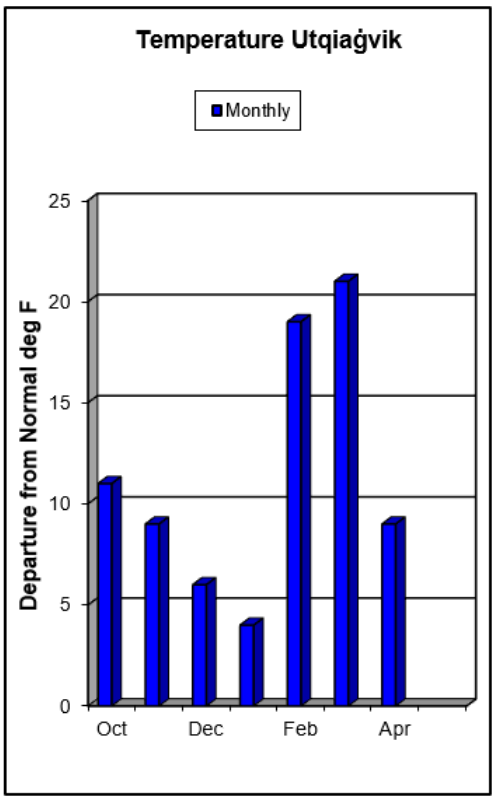
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Atigun Pass	4800	48	58	---	---	---	---
Imnaviat Creek	3050	20	40	---	---	---	---
Kelly Station	310	29	30	---	9.6	9.6	---
Prudhoe Bay	30	13	24	---	---	---	---
Sagwon	1000	19	10	---	---	---	---

**Estimate*

Precipitation

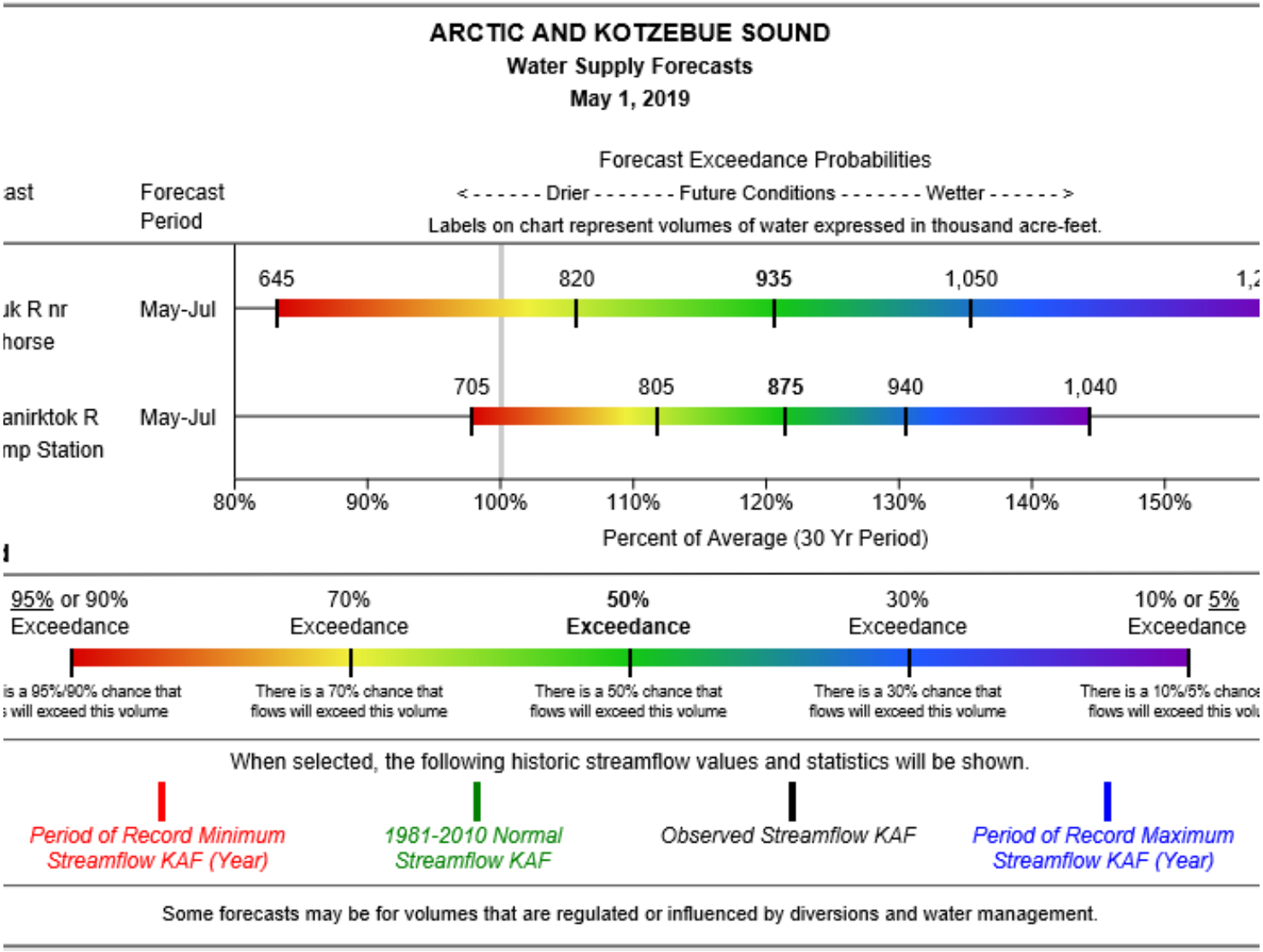
Inches Accumulated since October 1st

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Arctic					
Atigun Camp	3400	3.8	4.2	3.0	127%
Atigun Pass	4800	7.6	6.4	6.7	113%
Imnaviat Creek	3050	3.3	4.5	3.3	100%
Prudhoe Bay	30	3.2	4.9	4.1	78%
Sagwon	1000	3.2	3.5	3.4	94%
Kotzebue Sound					
Port Red Dog	50	6.8	---	4.9	138%
Red Dog Mine	950	11.0	---	5.3	208%
Kelly Station	310	9.4	10.3	---	---

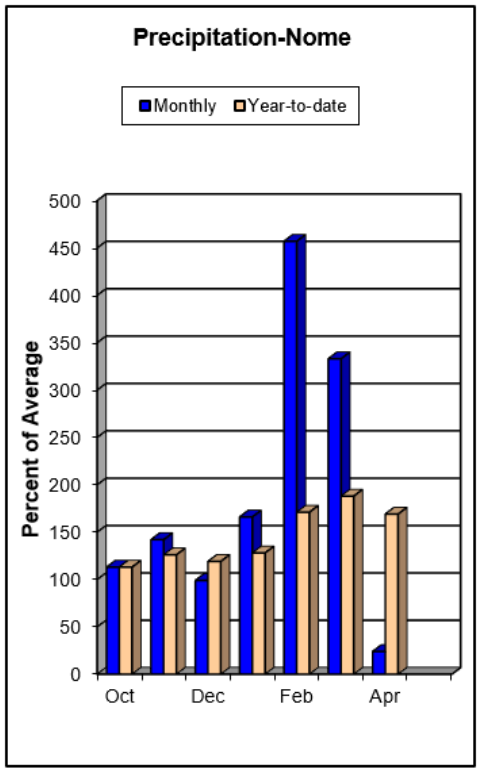


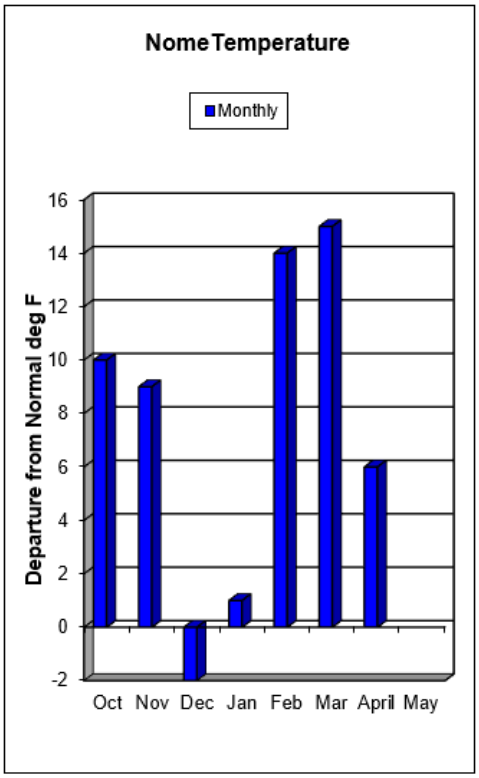
Arctic and Kotzebue Sound

Streamflow Forecasts



Norton Sound/Y-K Delta/Bristol Bay





Snowpack

Western Alaska had much below normal precipitation for April. Sites on the Seward Peninsula have begun melting out in earnest.

Precipitation

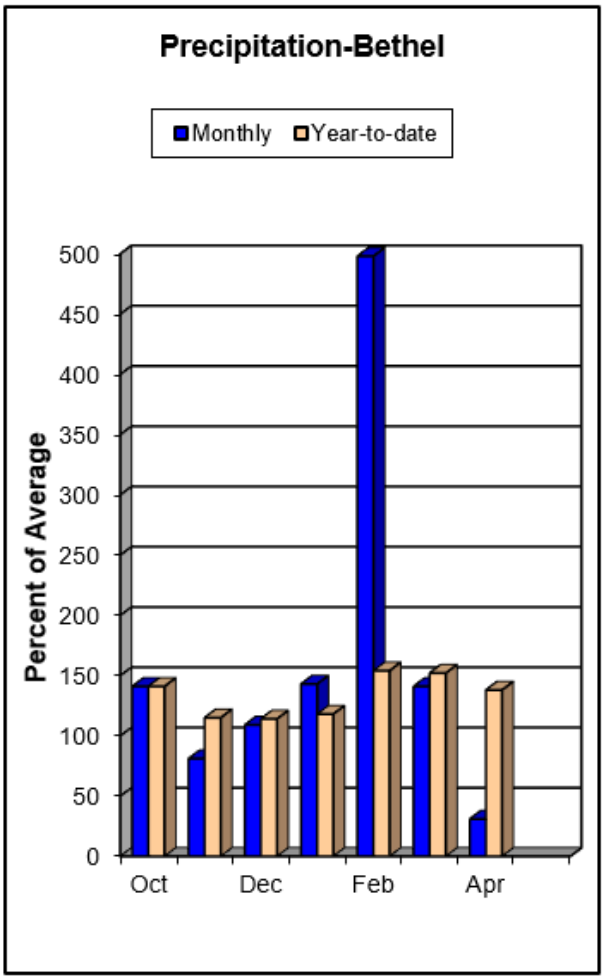
		Inches Accumulated since October 1st			
Site Name	**Elev.**	**This Year**	**Last Year**	**1981-2010 Normal**	**% of Normal**
Norton Sound					
Pargon Creek	100	8.1	9.3	6.7	121%
Rocky Point	250	6.9	7.8	5.8	119%

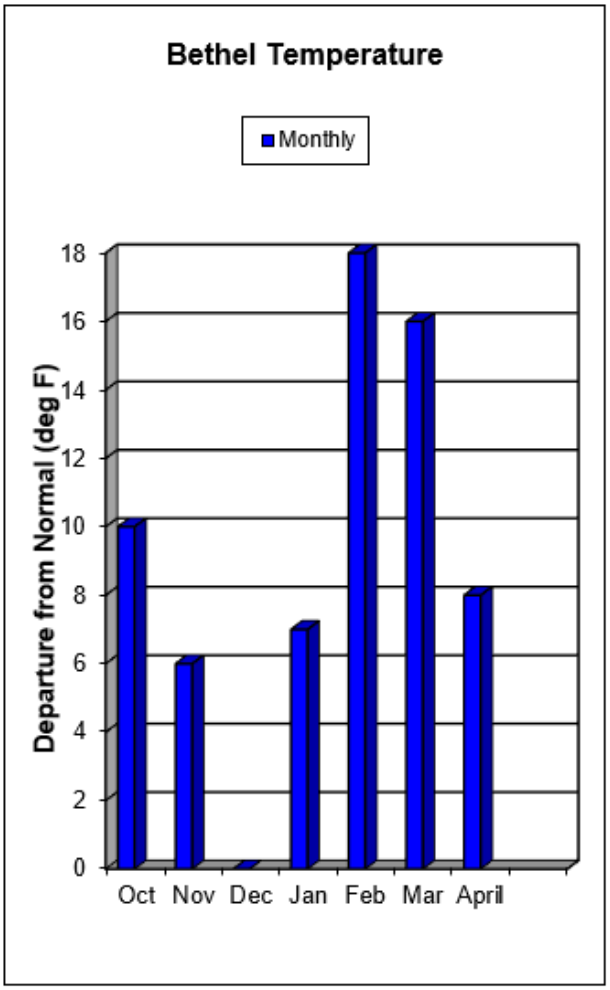
Norton Sound/Bristol Bay

Snowpack Data

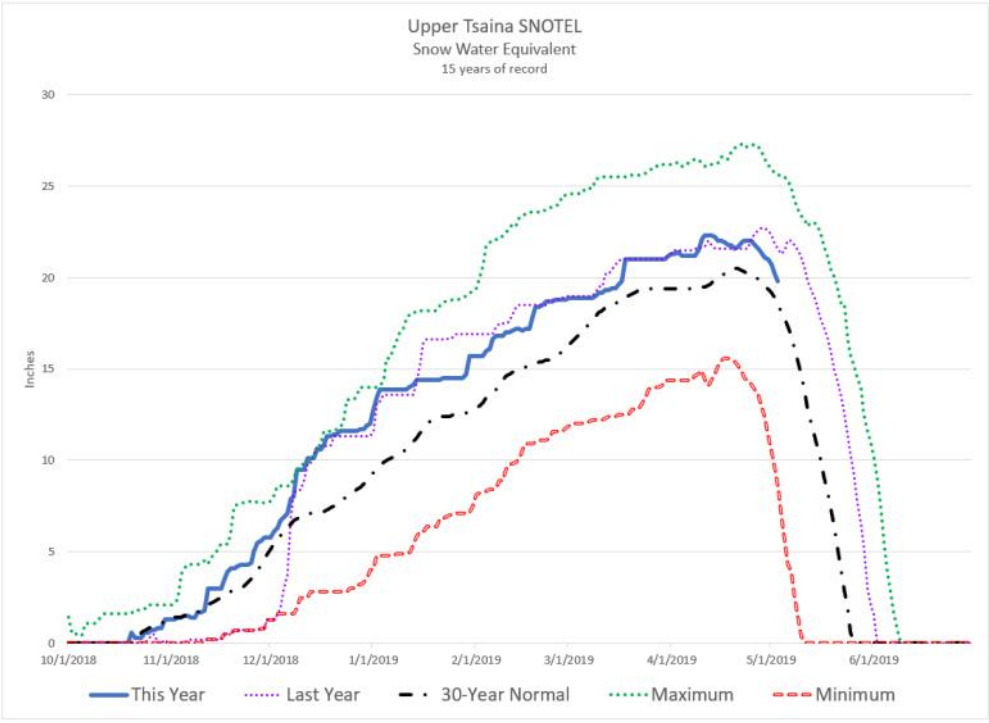
Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Norton Sound							
Johnsons Camp	25	36	32	---	---	---	---
Pargon Creek	100	20	21	---	---	---	---
Rocky Point	250	40	40	---	---	---	---

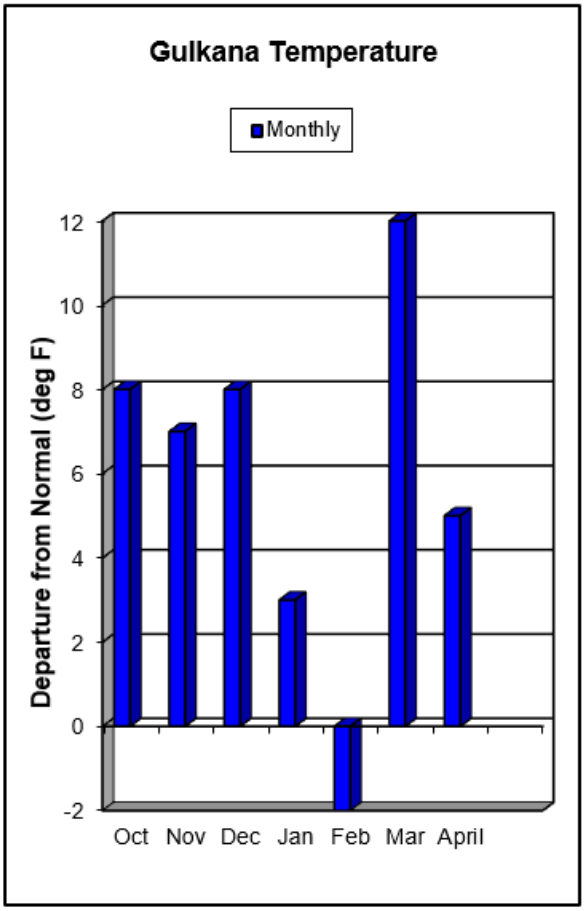
**Estimate*





Copper Basin





Snowpack

The snowpack in the Copper River Basin is below normal with much of the valley floor melted out. The new Gulkana River SCAN site started to melt out on April 11th. Snow sites in the Chugach Mountains are near normal. Upper Tsaina SNOTEL started to melt out two weeks early, but a snow storm delayed the process and the snowpack at the site is right near 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	0	13	0	0	3.4	0.0
Gulkana River	1830	0	---	---	0.0	---	---
Haggard Creek	2540	12	28	14	3.6	6.8	4
Kenny Lake School	1300	0	0	0	0.0	0.0	0.0
Little Nelchina	2650	0	22	12	0.0	6.8	3.7
May Creek	1610	0	4		0.0	0.6	2
Mentasta Pass	2430	3	23	14	1.2	6.7	3.9
Nicks Valley	4280	130	131	---	---	---	---
Paxson	2650	26	42	22	6.3	10.2	6.4
Tazlina	1250	0	0	0	0.0	0.0	0
Tolsona Creek	2000	0	14	0	0.0	4.4	0.0
Tsaina River	1650	35	40	42	12.2	16.0	14.0
Upper Tsaina River	1750	49	54	---	20.7	22.3	19.2
Worthington Glacier	2100	56	65	63	24.4	26.5	24.6

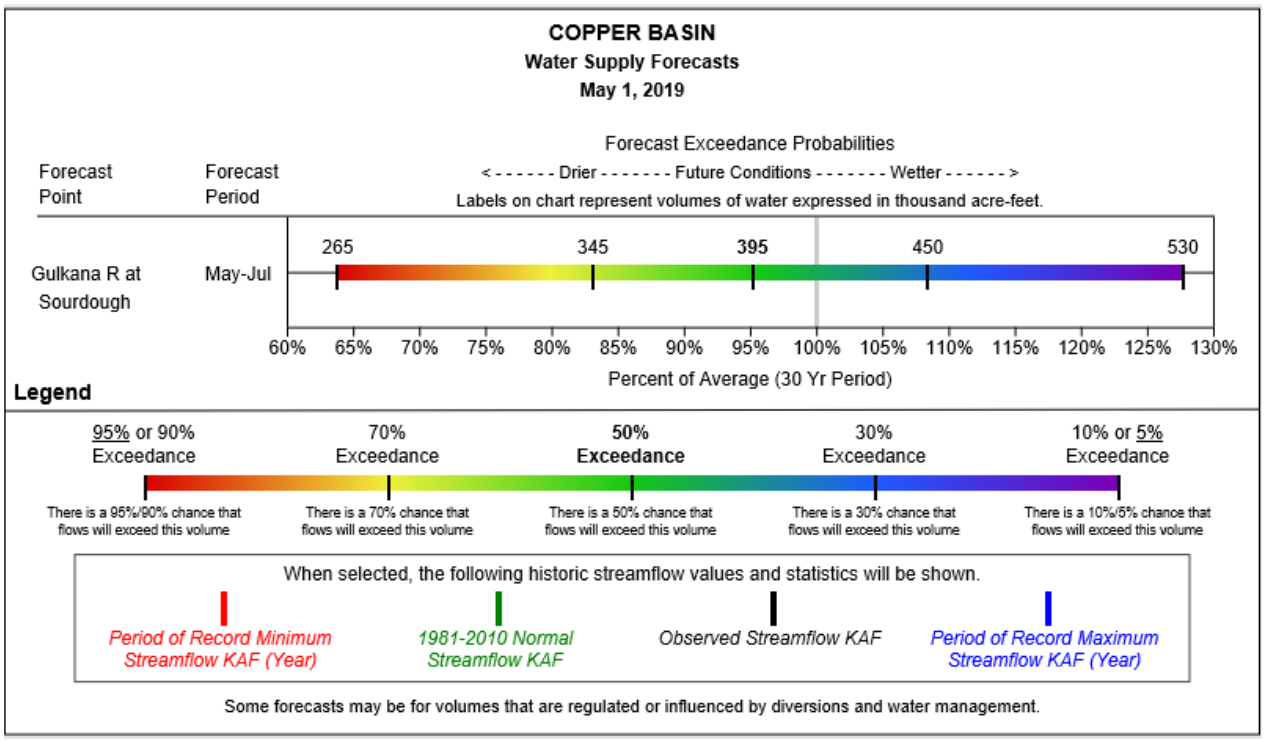
**Estimate*

Precipitation

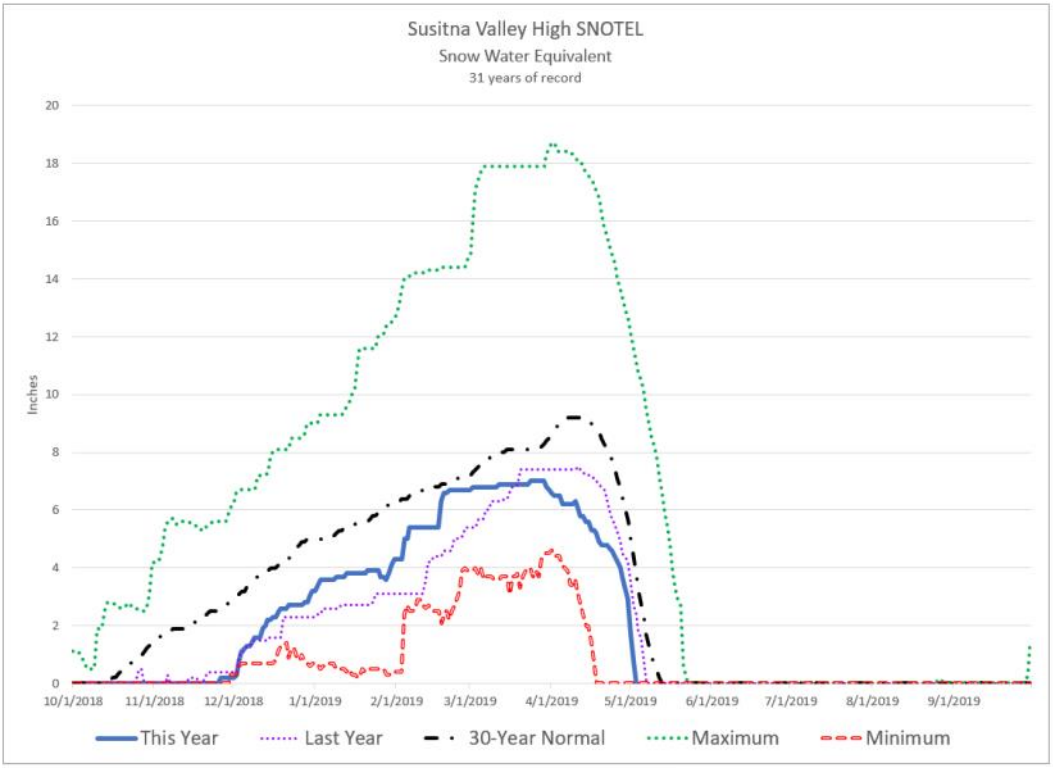
Inches Accumulated since October 1st

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Gulkana River	1830	3.9	---	---	---
May Creek	1610	6.1	11.5	6.5	94%
Upper Tsaina River	1750	34.2	26.7	28.5	120%

Streamflow Forecasts

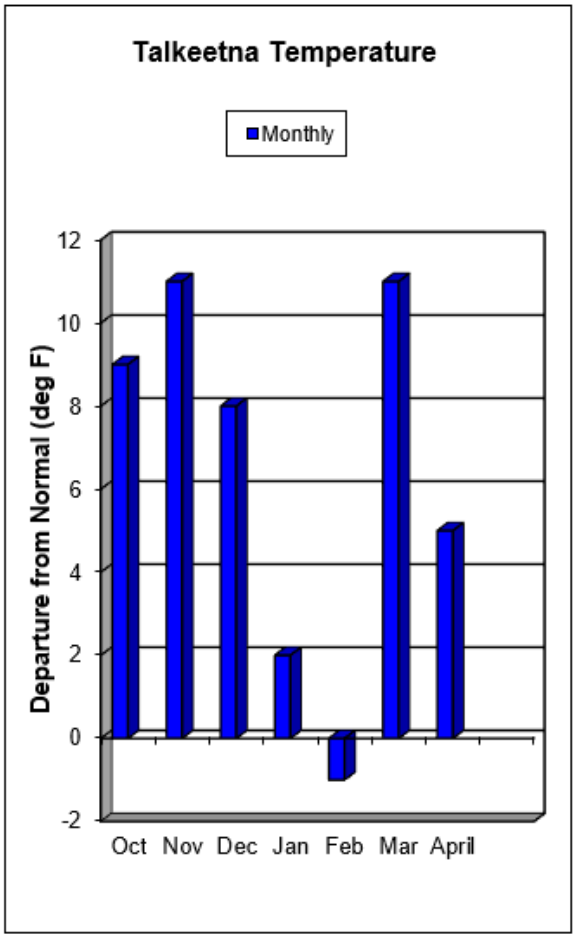


Matanuska—Susitna Basin



Snowpack

Most of the snowpack in the lower Susitna Valley has melted out ahead of schedule. Su Valley High SNOTEL reached peak snowpack 2 weeks ahead of schedule and melted out 10 days before average. Higher elevation snow-packs benefitted from a midmonth storm which dumped considerable amounts of snow. Independence Mine SNOTEL gained 21 inches of depth over two days, mid-month. This had the effect of delaying what had been a significantly early onset of melt out. Sites in the basin at higher elevations have close to normal snowpack.



Matanuska—Susitna Basin

Precipitation

		Inches Accumulated since October 1st			
Site Name	**Elev.**	**This Year**	**Last Year**	**1981-2010 Normal**	**% of Normal**
Alexander Lake	160	20.8	17.5	—-	—-
Independence Mine	3550	20.0	27.3	18.0	111%
Monahan Flat	2710	9.1	9.7	8.6	106%
Spring Creek	580	6.8	—-	—-	—-
Susitna Valley High	375	13.7	17.5	13.4	102%
Tokositna Valley	850	30.0	25.5	21.4	140%

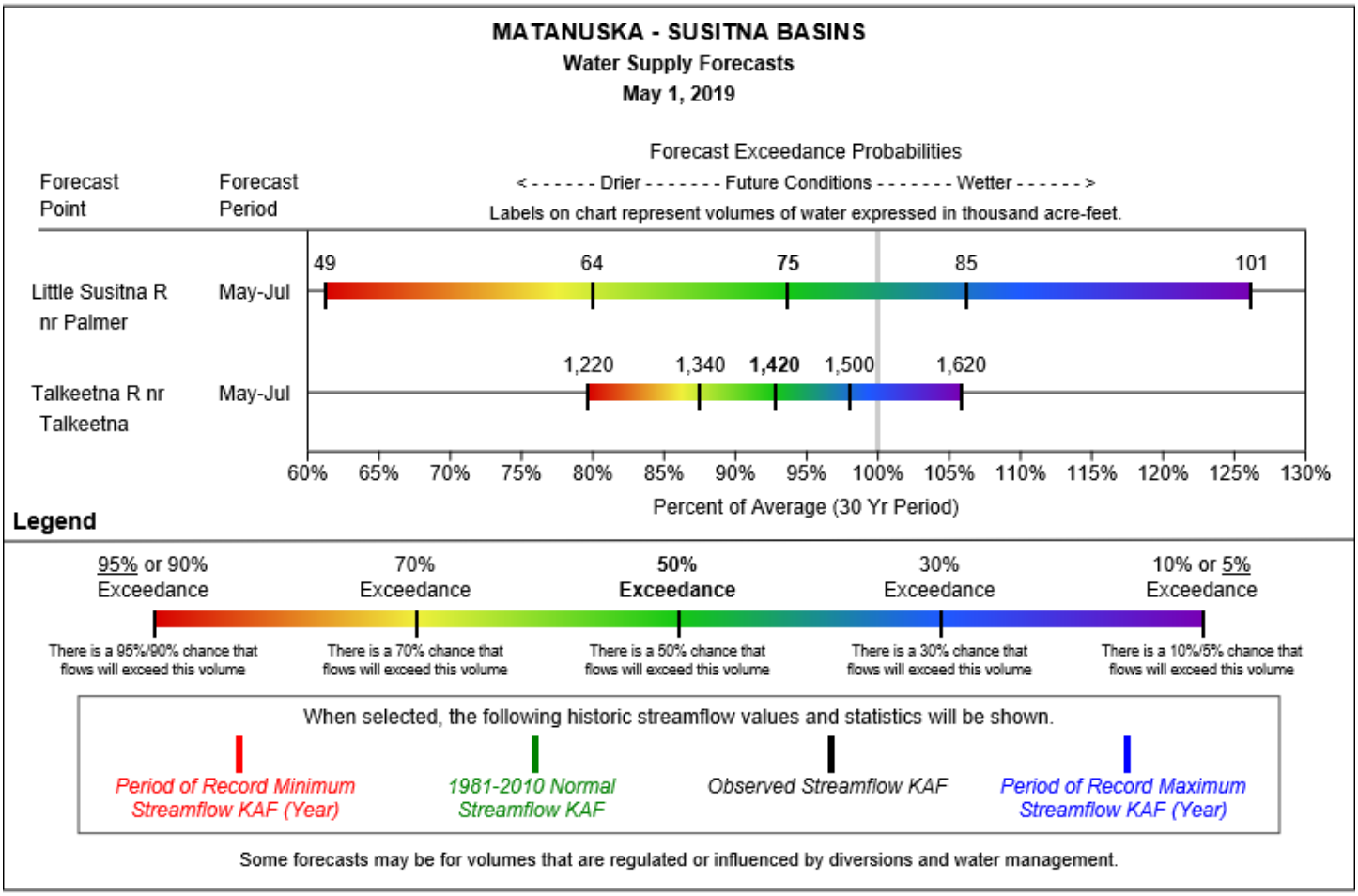
Snowpack Data

		Snow Depth (in)			Water Content (in)		
Site Name	**Elev.**	**Current**	**Last Year**	**1981-2010 Normal**	**Current**	**Last Year**	**1981-2010 Normal**
Alexander Lake	160	0	0	---	0.0	0.0	---
Anchorage Hillside	2080	15	11		5.3	3.9	10.8
Archangel Road	2200	30	47	35	11.9	17.7	12
Birthday Pass	4020	73	116		25.4	37.7	---
Blueberry Hill	1200	28	45	40	11.8	16.1	14.1
Denali View	700	6	26	27	2.2	8.7	9.1
E. Fork Chulitna	1770	36	59	42	12.6	17.2	12.4
Fishhook Basin	3300	50	85	55	17.3	27.2	20
Horsepasture Pass	4300	24	27	---	6.7*	7.6*	---
Independence Mine	3550	57	100	61	20.2	32.8	21.8
Independence Mine SNOTEL	3550	45	75	---	12.3	20.7	14.6
Kinkaid Park	250	0	0	0	0.0	0.0	0.0
Lake Louise	2400	0	15	11	0.0	4.3	2.9
Little Susitna	1700	17	26	21	5.8	10.3	8.2
Monahan Flat	2710	22	26	30	7.6	8.9	7.6
Moraine	2100	0	6	---	0.0	1.8	6.5
Sheep Mountain	2900	4	20	11	1.4	4.7	3.1
Spring Creek	580	0	---	---	---	---	---
Susitna Valley High	375	5	8		2	4	5
Talkeetna	350	0	5	12	0.0	1.3	4.0
Tokositna Valley	850	30	40	---	13.0	14.7	11.8
Willow Airstrip	200	0	0	10	0.0	0.0	3.3

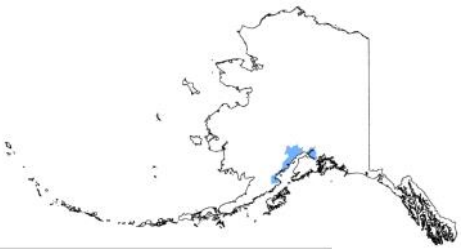
**Estimate*

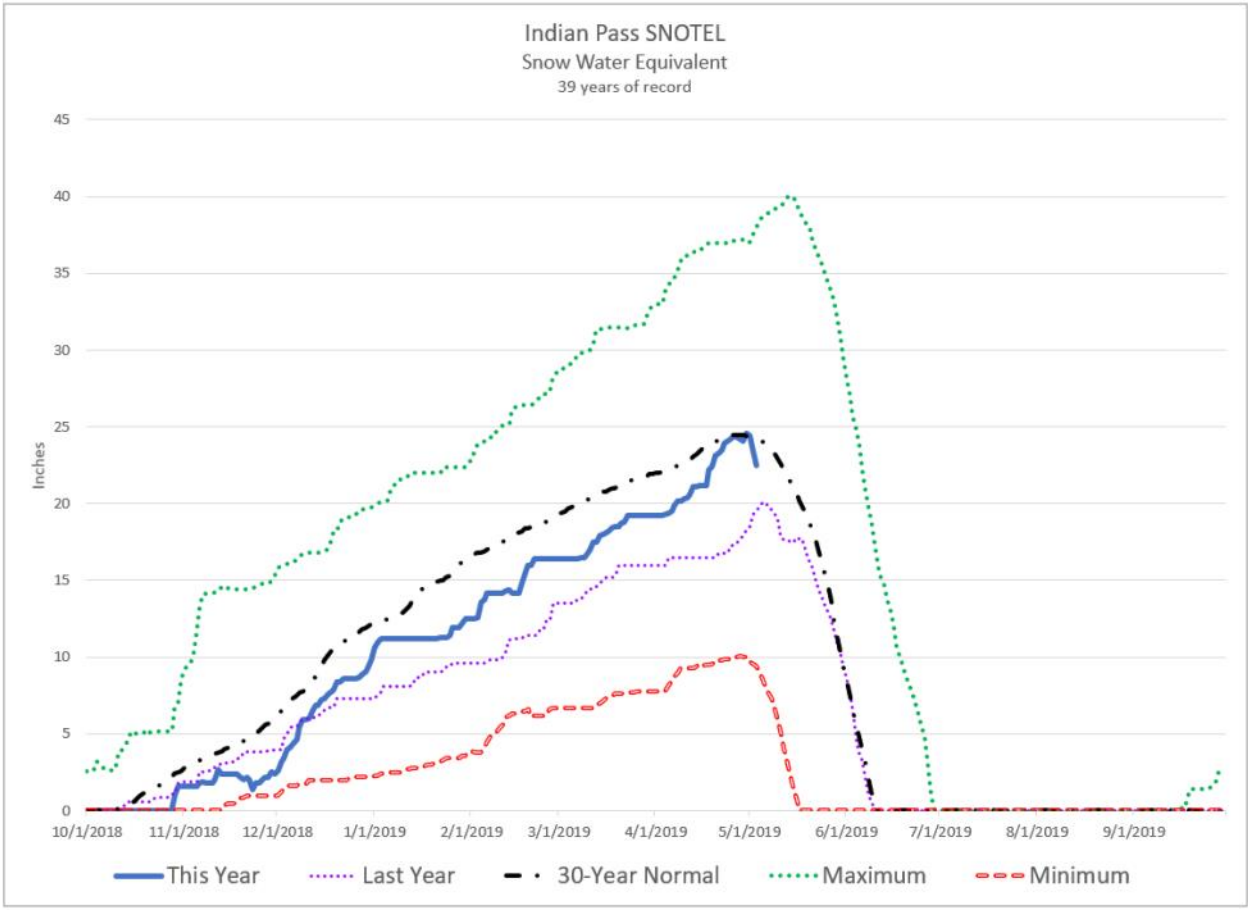
Matanuska—Susitna Basin

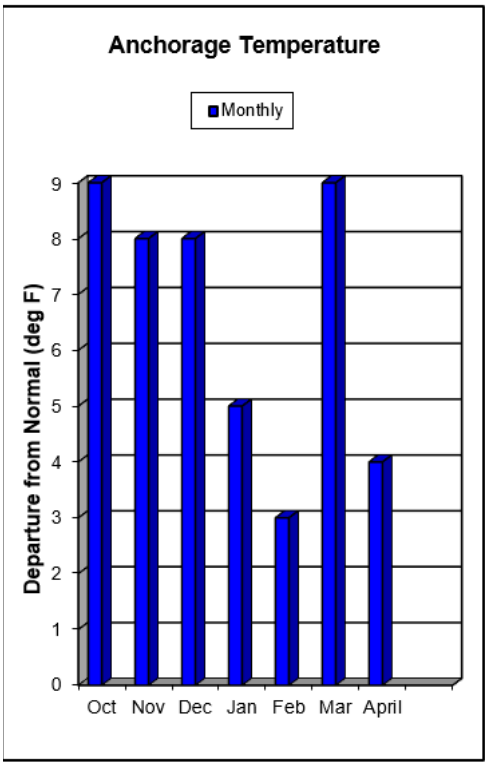
Streamflow Forecasts



Northern Cook Inlet







Snowpack

Snowpack in the North Cook Inlet area is below normal. However, a mid-month storm dumped considerable snow on higher elevation snowpacks. This had the effect of delaying what had been a significantly early onset of melt out. Anchorage Hillside SNOTEL which appeared to be headed for a melt out a full month early, will now only be two weeks ahead of average after receiving an additional 16” of snow depth mid-month.

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	15	11		5.3	3.9	10.8
Indian Pass	2350	54	58	---	24.4	18.5	24.3
Kinkaid Park	250	0	0	0	0.0	0.0	0.0
Moraine	2100	0	6	---	0.0	1.8	6.5
Mt. Alyeska	1540	38	42	---	15.3	15.0	35.2
South Campbell Creek	1200	0	0	10	0.0	0.0	3.4

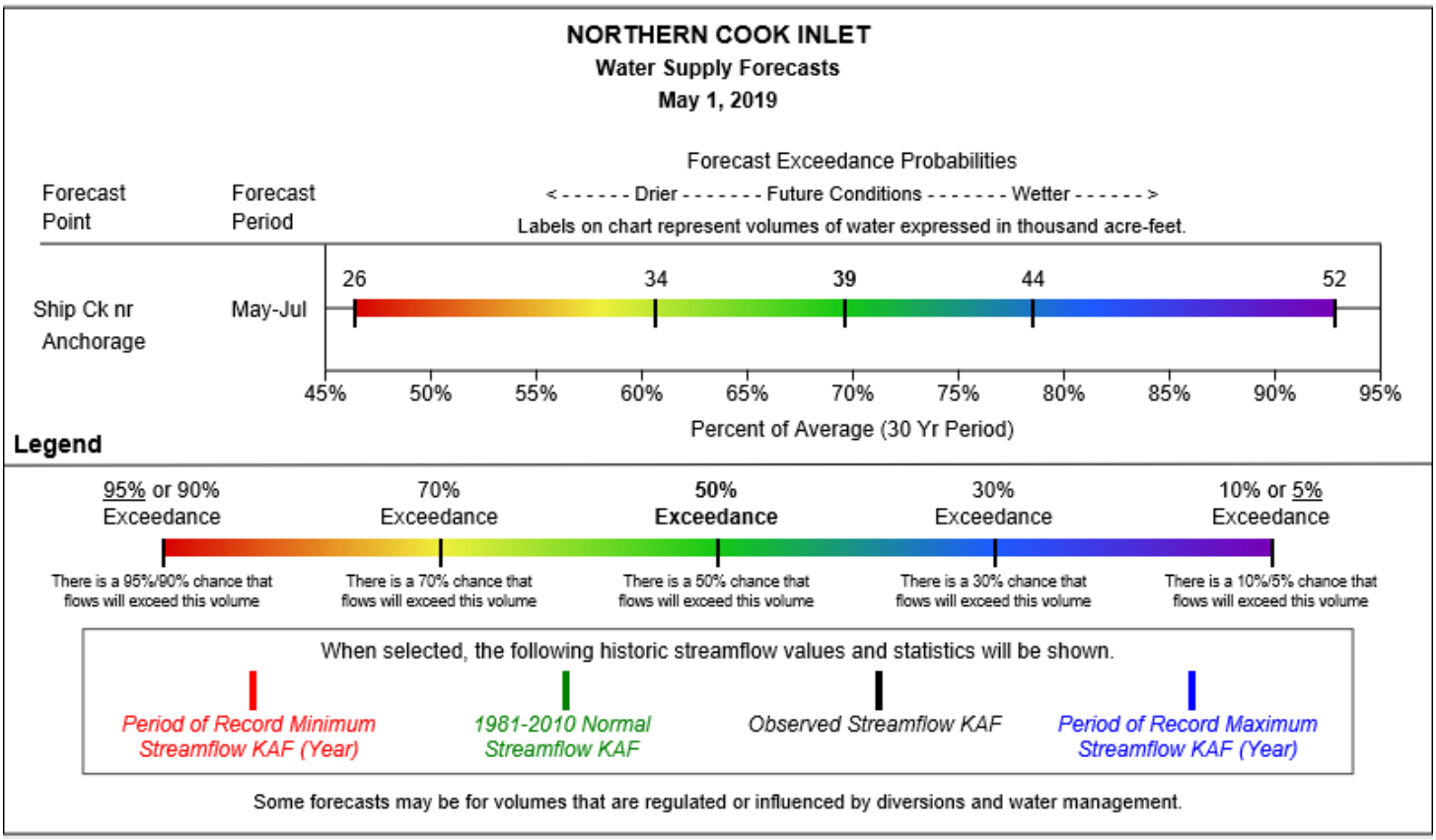
**Estimate*

Precipitation

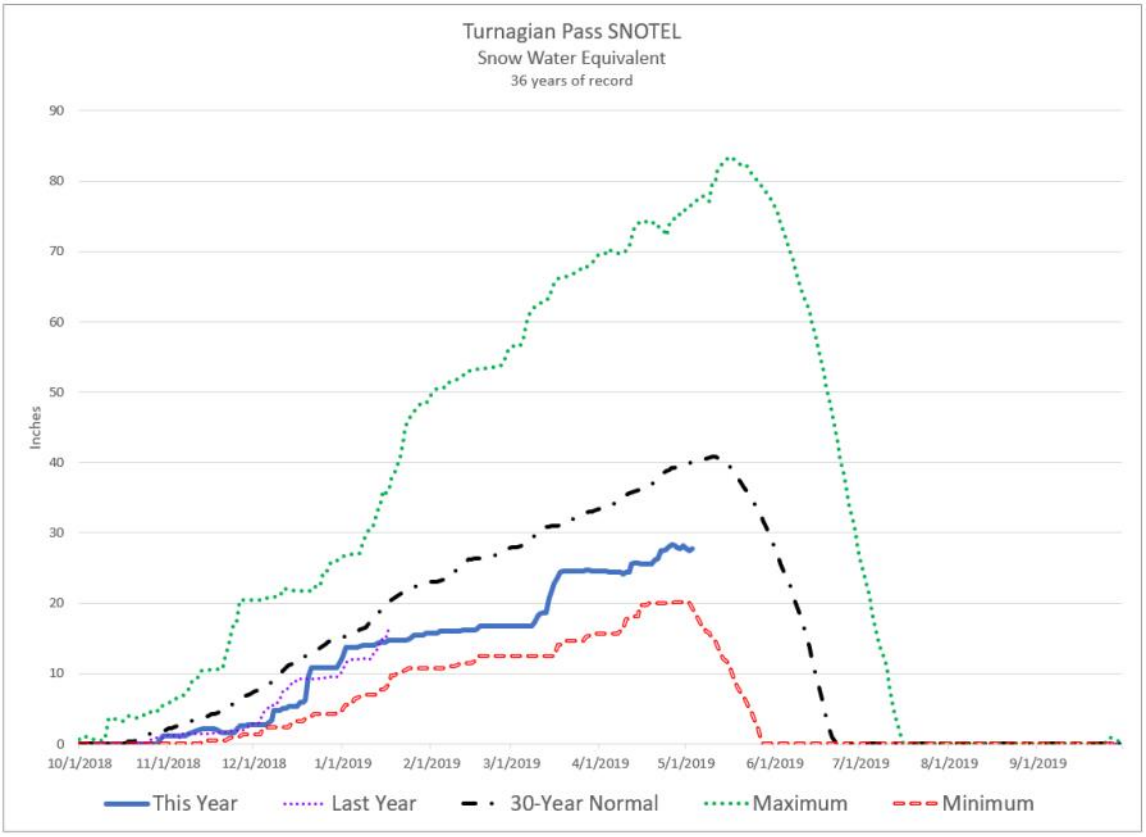
Inches Accumulated since October 1st

Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Anchorage Hillside	2080	17.3	13.5	15.5	112%
Indian Pass	2350	28.5	27.5	28.4	100%
Mcneil River SGS	140	58.4	52.3	---	---
Moraine	2100	15.7	9.1	12.7	124%
Mt. Alyeska	1540	62.9	37.0	52.9	119%

Streamflow Forecasts

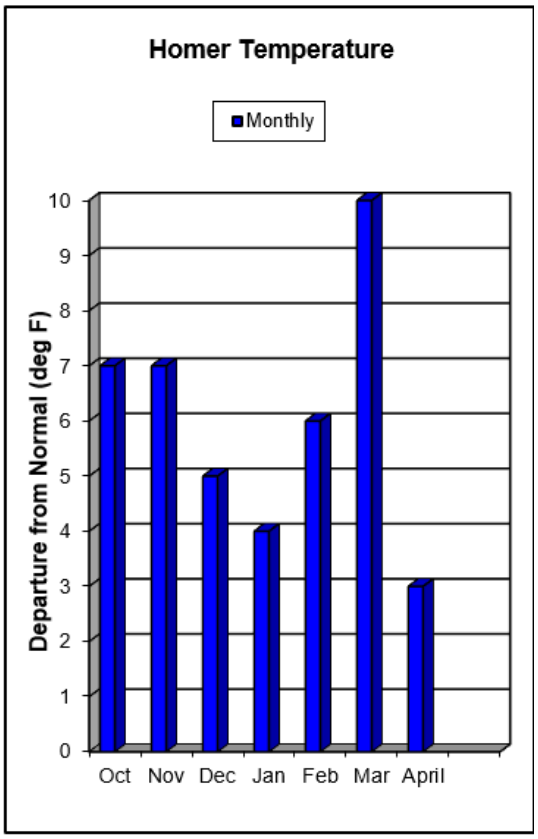


Kenai Peninsula



Snowpack

The precipitation patterns across the Kenai Peninsula in April were variable, with some locations receiving above normal precipitation and others below normal precipitation. The precipitation came as new snow, which delayed the early melt out. Low elevation sites have melted out and mountain stations are still two weeks ahead of schedule. Several new, high elevation sites were flown this month on the Kenai Peninsula. Not surprisingly, these sites displayed a more robust snowpack than lower sites. Snowpack at Grouse Creek Divide SNOTEL (700') of elevation had 25" of snow with 10.7" of water content while only three miles away at 2100' of elevation, near Lost Lake, the snowpack was measured with 99" of snow and 46" of water content. Even higher up, a little over a mile away, near the headwaters of Primrose Creek at 3100' of elevation, the snowpack was measured with 148" of snow depth and 65" of water content.



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	27	24	---	11.5	8.5	10.0
Bertha Creek	950	34	22	50	11.9	7.8	17.7
Bridge Creek	1300	23	5	32	8.8	1.8	10.6
Cooper Lake	1200	29	19	---	10.6	6.2	12.0
Demonstration Forest	780	0	0	13	0.0	0.0	4.6
Eagle Lake	1400	21	10	24	8.5	3.7	9.0
Exit Glacier SNOTEL	400	2	---	---	0.6	2.1	11.0
Exit Glacier	400	4	8	26	1.5	3.8	10.8
Grandview	1100	41	39	---	17.6	15.8	34.6
Grouse Creek Divide	700	24	24	---	10.7	10.2	16.0
Indian Pass	2350	54	58	---	24.4	18.5	24.3
Jean Lake	620	0	0	0	0.0	0.0	0.0
Kachemak Creek	1660	25	16	---	---	---	---
Kenai Moose Pens	300	0	0	---	0.0	0.0	0.0
Kenai Summit	1390	23	18	30	7.4	6.6	11.3
Lark Valley	3300	102	---	---	41.2	---	---
Lost Lake	2130	99	---	---	46.4	---	---
Lower Kachemak Creek	1915	35	44	---	---	---	---
Mcneil Canyon	1320	5	2	---	1.6	0.6	8.0
Middle Fork Bradley	2300	45	56	---	---	---	---
Moose Pass	700	0	0	0	0.0	0.0	0.0
Mt. Alyeska	1540	38	42	---	15.3	15.0	35.2
Nuka Glacier	1250	52	51	---	---	---	---
Port Graham	300	0	0		0.0	0.0	4.0
Portage Valley	50	0	4	14	0.0	1.1	6.2
Upper Primrose Creek	3050	148	---	---	65.1	---	---
Snug Harbor Road	500	0	0	0	0.0	0.0	0.0
Spencer Bench	2420	142	---	---	59.4	---	---
Summit Creek	1400	16	16	---	5.3	4.5	6.7
Turnagain Pass	1880	67	63	---	27.8	---	39.8

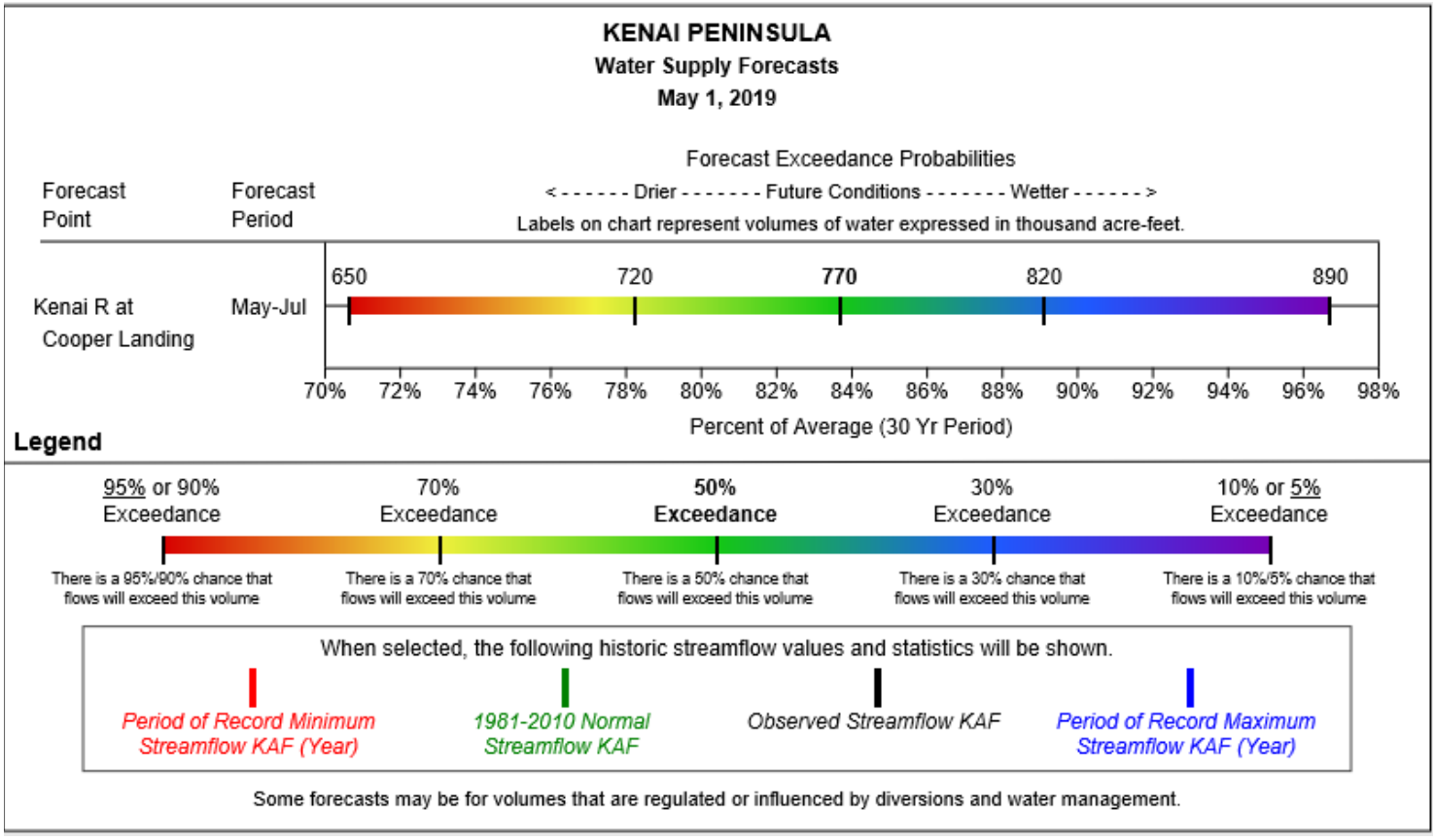
**Estimate*

Kenai Peninsula

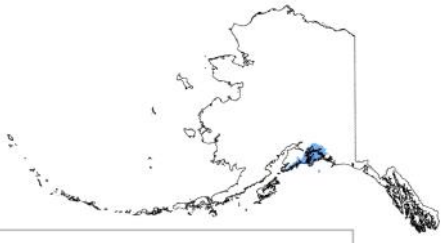
Precipitation

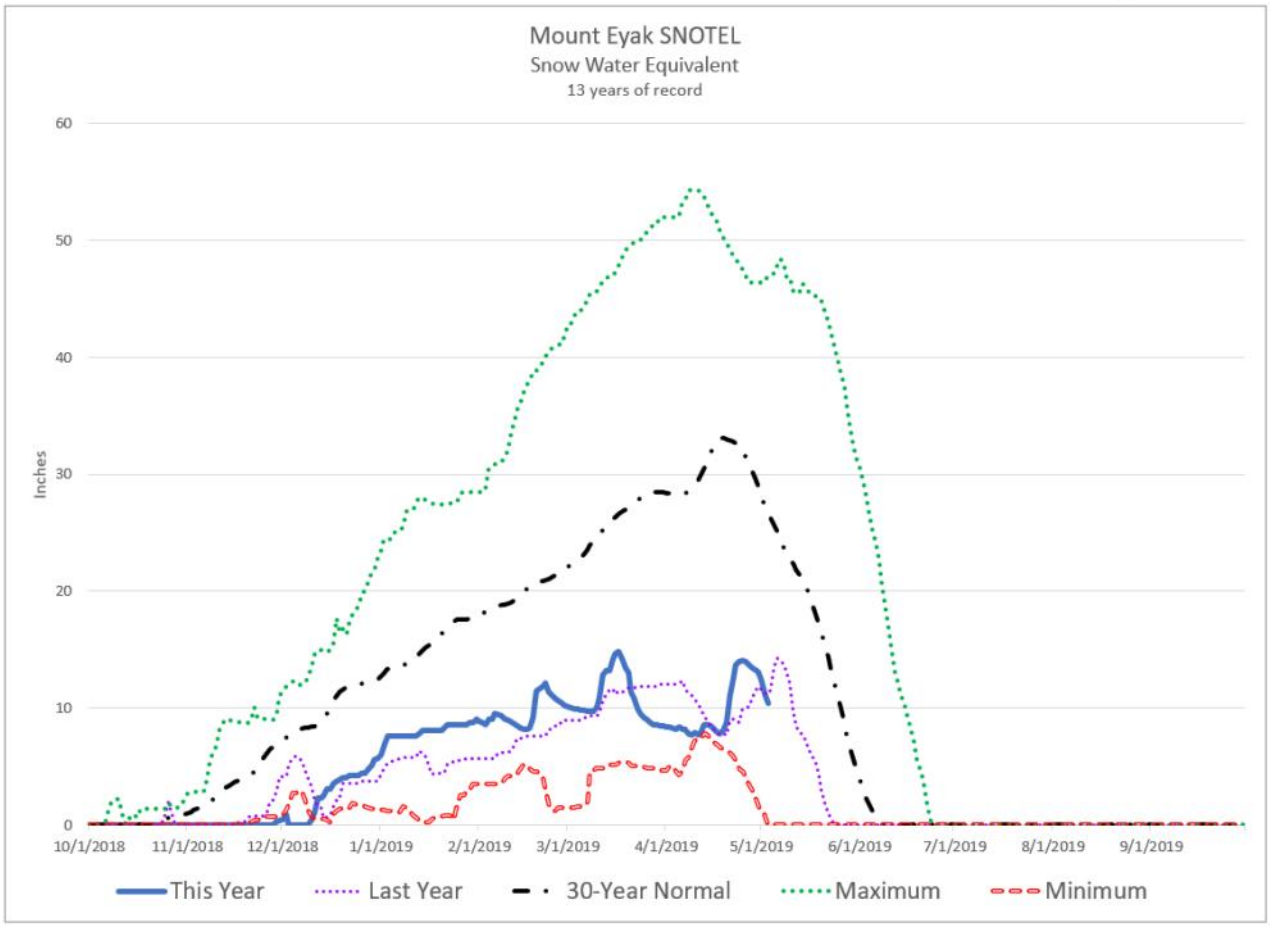
		Inches Accumulated since October 1st			
Site Name	**Elev.**	**This Year**	**Last Year**	**1981-2010 Normal**	**% of Normal**
Anchor River Divide	1653	24.6	18.7	18.5	133%
Cooper Lake	1200	41.1	23.4	27.1	152%
Grandview	1100	57.8	36.1	46.9	123%
Grouse Creek Divide	700	54.5	38.6	41.9	130%
Kachemak Creek	1660	66.7	45.3	41.7	160%
Kenai Moose Pens	300	10.9	8.7	8.9	122%
Mcneil Canyon	1320	21.8	14.7	17.9	122%
Middle Fork Bradley	2300	51.8	30.6	35.6	146%
Nuka Glacier	1250	79.1	52.8	60.8	130%
Port Graham	300	56.5	44.7	52.8	107%
Summit Creek	1400	23.8	17.3	17.1	139%
Turnagain Pass	1880	55.5	34.5	47.2	118%

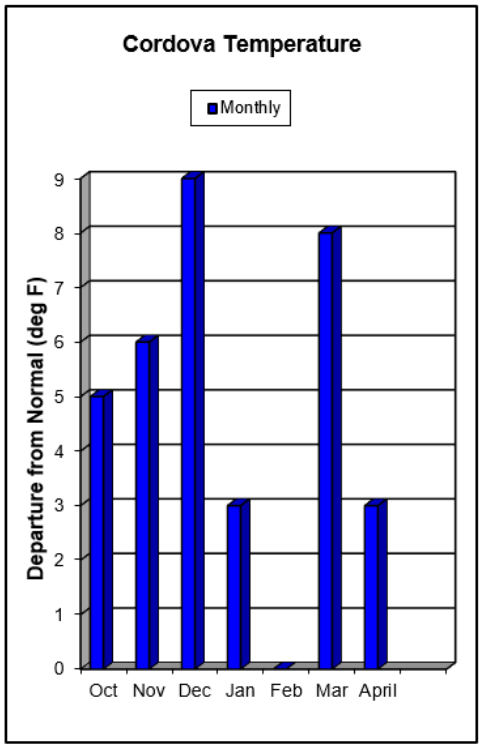
Streamflow Forecasts



Western Gulf – Prince William Sound







Snowpack

April brought near normal precipitation to Prince William Sound. Some locations were above normal, others below. This precipitation generally came as snow in the mountains and slowed melt out. At lower locations, it barely slowed melt out. Higher elevation measurements sites near Valdez have close to normal snowpacks, but lower sites melted out before typical.

Western Gulf — Prince William Sound

Snowpack Data

Site Name	Elev.	Snow Depth (in)			Water Content (in)		
		Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Exit Glacier	400	4	8	26	1.5	3.8	10.8
Exit Glacier SNOTEL	400	2	---	---	0.6	2.1	11.0
Lowe River	600	0	---	32	0.0	---	11.8
Mt. Eyak	1405	33	28	---	12.3	11.6	28.1
Sugarloaf Mountain	550	---	40	61	---	12.0	23.9
Tsaina River	1650	35	40	42	12.2	16.0	14.0
Upper Tsaina River	1750	49	54	---	20.7	22.3	19.2
Valdez	50	0	0	28	0.0	0.0	10.4
Worthington Glacier	2100	56	65	63	24.4	26.5	24.6

**Estimate*

Precipitation

Inches Accumulated since October 1st

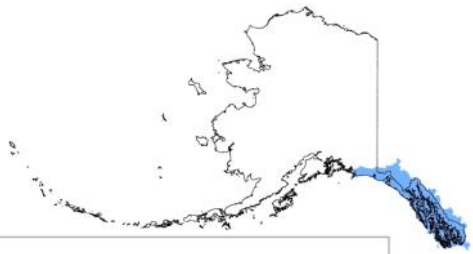
Site Name	Elev.	This Year	Last Year	1981-2010 Normal	% of Normal
Esther Island	50	129.5	88.9	89.0	146%
Grouse Creek Divide	700	54.5	38.6	41.9	130%
Mt. Eyak	1405	105.2	81.0	---	---
Nuchek	50	124.0	85.9	---	---
Nuka Glacier	1250	79.1	52.8	60.8	130%
Port Graham	300	56.5	44.7	52.8	109%
Seal Island	20	58.5	38.3	---	---
Strawberry Reef	30	66.7	46.3	---	---
Sugarloaf Mtn	550	58.8	47.4	44.4	132%
Tatitlek	50	63.6	46.4	44.1	144%

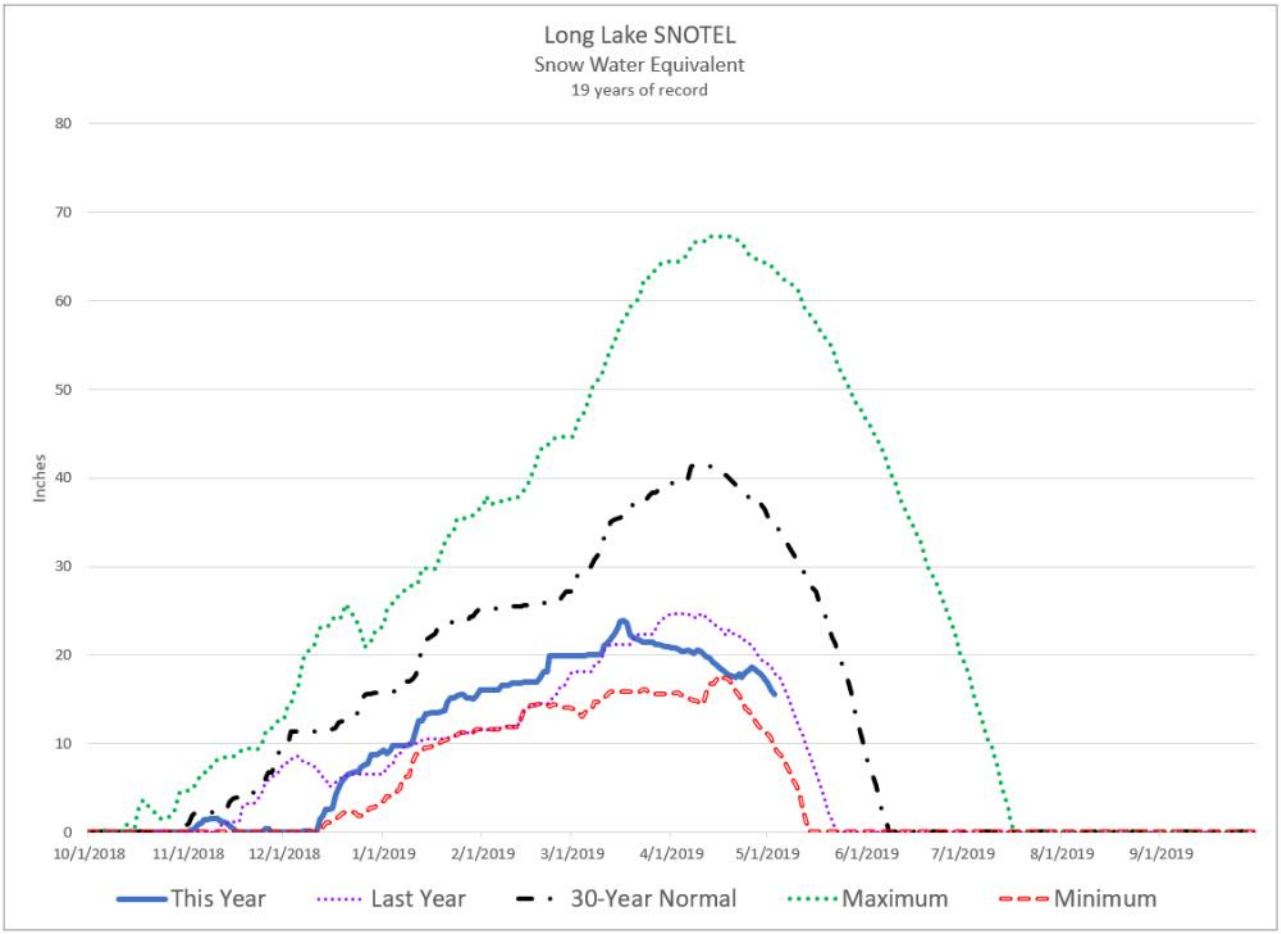
Kodiak Island

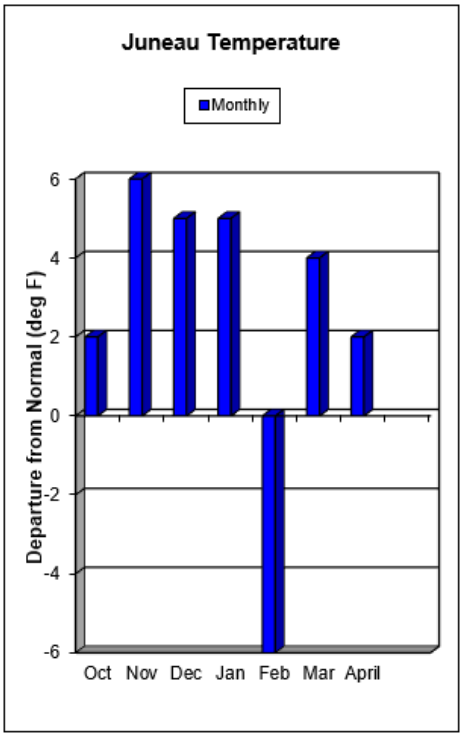
Snowpack Data

Site Name	Date	Elev.	Snow Depth (in)			Water Content (in)		
			Current	Last Year	1981-2010 Normal	Current	Last Year	1981-2010 Normal
Falls Creek	4/15/2019	2400	83	---	---	42.0	---	---
Terror Lake	4/15/2019	1600	38	---	---	22.0	---	---

Southeast







Snowpack

Southeast had near to above normal precipitation during April. However, this precipitation did little to increase the snowpack, except at the highest elevations. Snowpack in Southeast is well below normal. Long Lake SNOTEL experienced its earliest peak snowpack in its twenty-year record (26 days before typical), though the melt out has been slow there and will likely be free of snow only two weeks before typical. Cropley Lake Snow Course, the highest snow course on Douglas Island, had only 9.6" of water content and recorded its third lowest May 1st measurement in 41 years.

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	24	29	70	9.6	12.9	29.6
Eagle Crest	1200	0	5	34	0.0	1.9	12.2
Fish Creek	500	0	0	0	0.0	0.0	0.0
Flower Mountain	2510	57	41	---	20.1	14.2	---
Heen Latinee	2065	8	18	---	3.1	5.3	---
Institute Creek	1350		0	---	---	0.0	---
Long Lake	850	39	41	---	16.8	19.0	35.8
Moore Creek Bridge	2250	34	24	---		---	---
Mount Ripinsky	2540	68	---	---	28.6	---	---
Petersburg Reservoir	550	0	0	0	0.0	0.0	0.0
Petersburg Ridge, S.	1650	21	18	52	7.9	8.0	22
Rainbow Falls	500	0*	0	---	0*	0.0	---
Speel River	280	16	23	50	6.3	13.6	22.0
West Creek	475	0*	0	---	0*	0.0	---

**Estimate*

Precipitation Data

Site Name	Elev.	Inches Accumulated since October 1st			
		This Year	Last Year	1981-2010 Normal	% of Normal
Long Lake	850	91.1	80.1	104.6	87%
Heen Latinee	2065	41.2	34.2	---	---
Moore Creek Bridge	2250	27.2	25.4	29.6	92%

Streamflow Forecast

Forecast Point	Forecast Period	% of Average	Maximum(%)	Minimum(%)	50% Exceedance (KAF)	30yr Average (KAF)
Taiya River near Skagway	Apr-Jul	90	110	71	415	459

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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