

# Northwest Montana Weather and Streamflow Conditions for Water Years 2022 and 2023

**Presenter:**

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# April Snowpack, 2022

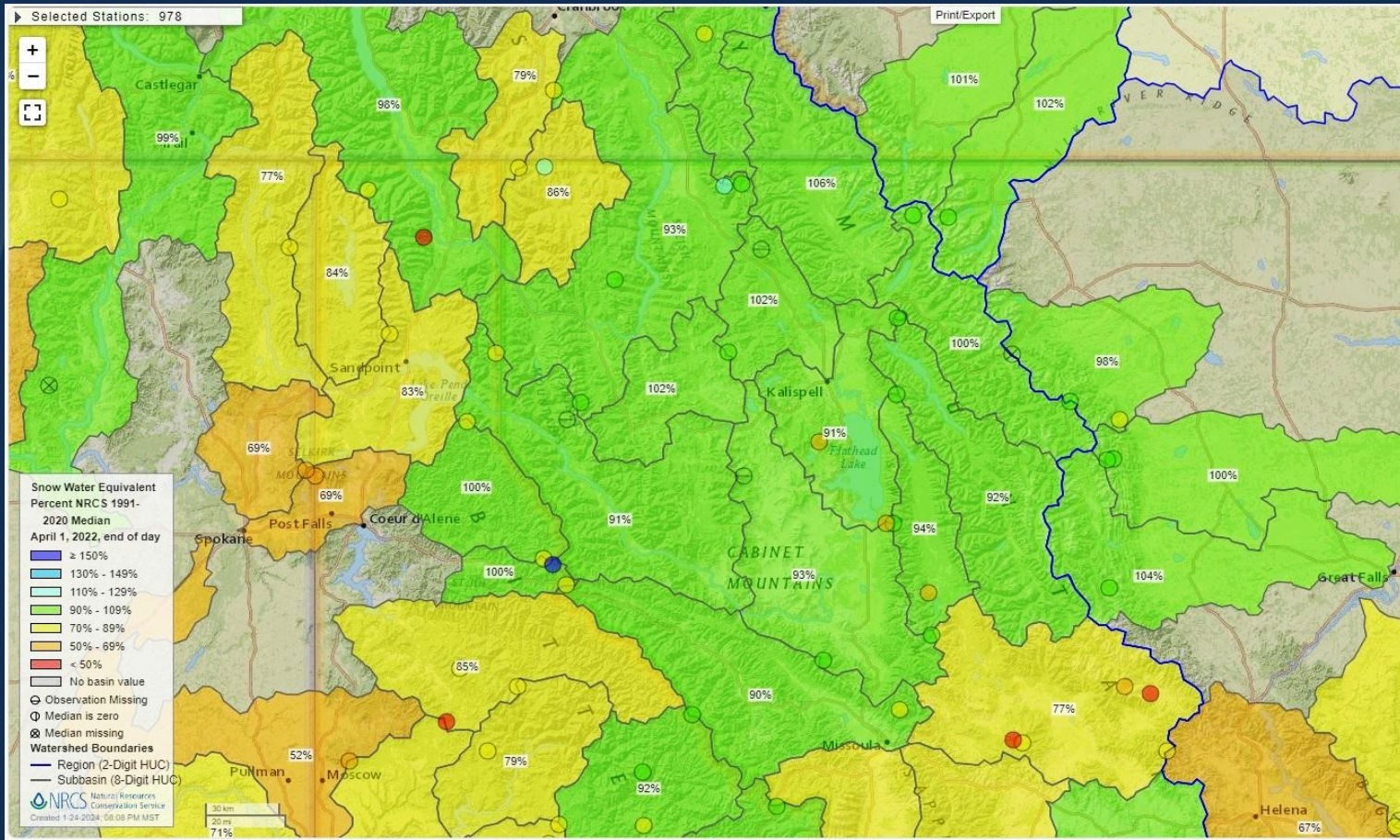
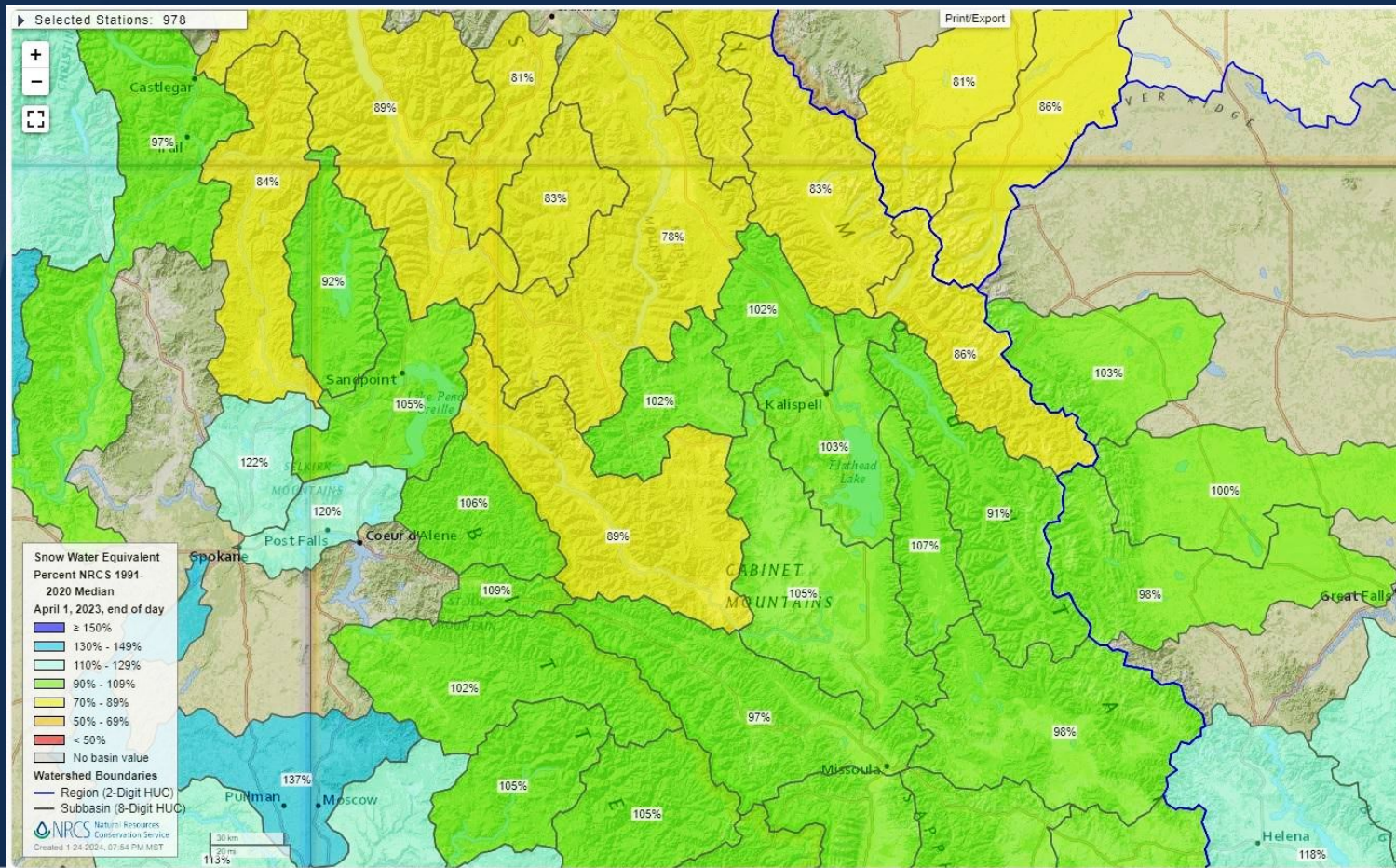


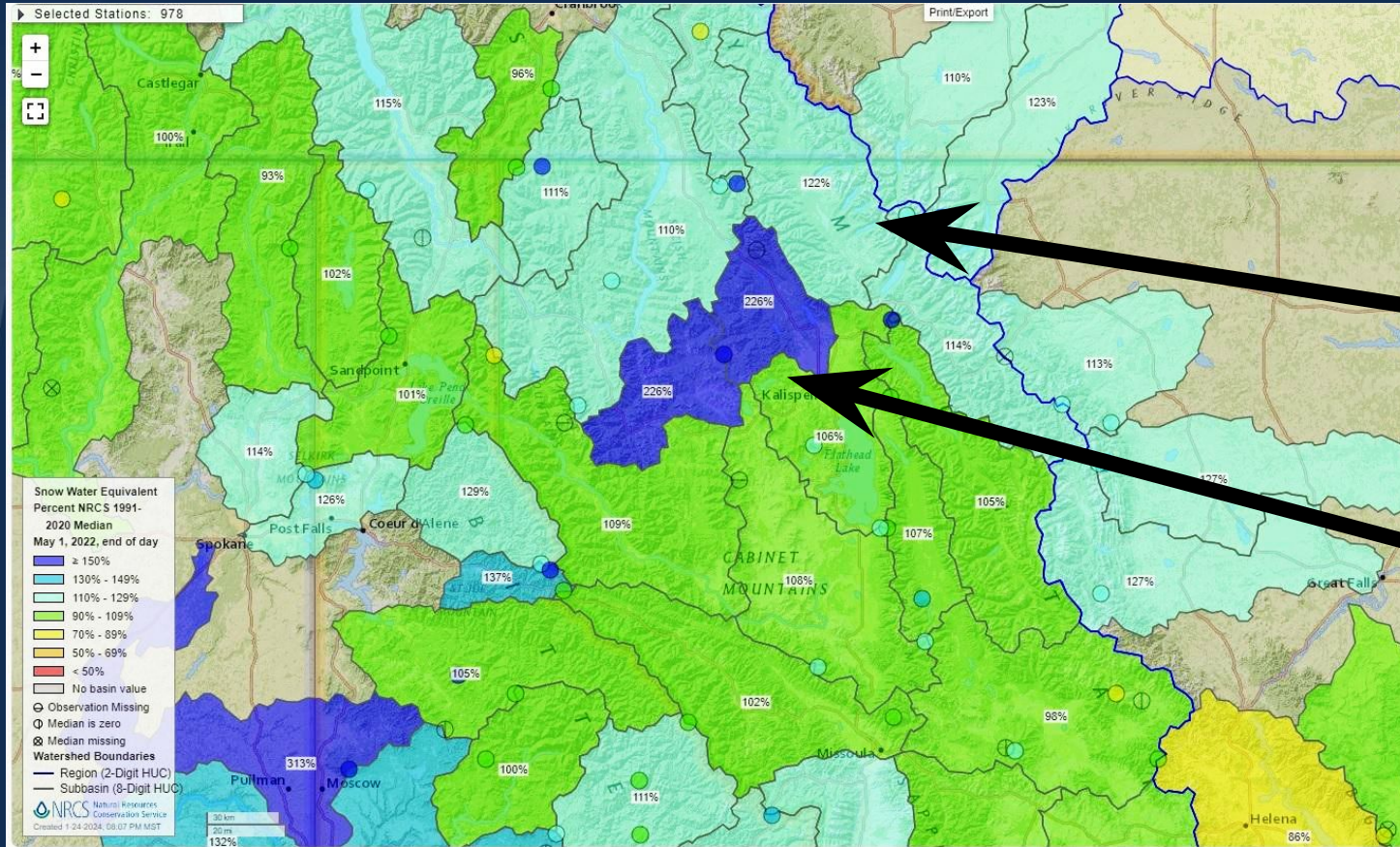
Image:  
Snow Water  
Equivalent % of  
Normal as of  
April 1, 2022.

# April Snowpack, 2023



**Image:**  
Snow Water  
Equivalent % of  
Normal as of  
April 1, 2023.

# Snowpack Progression: May 1, 2022



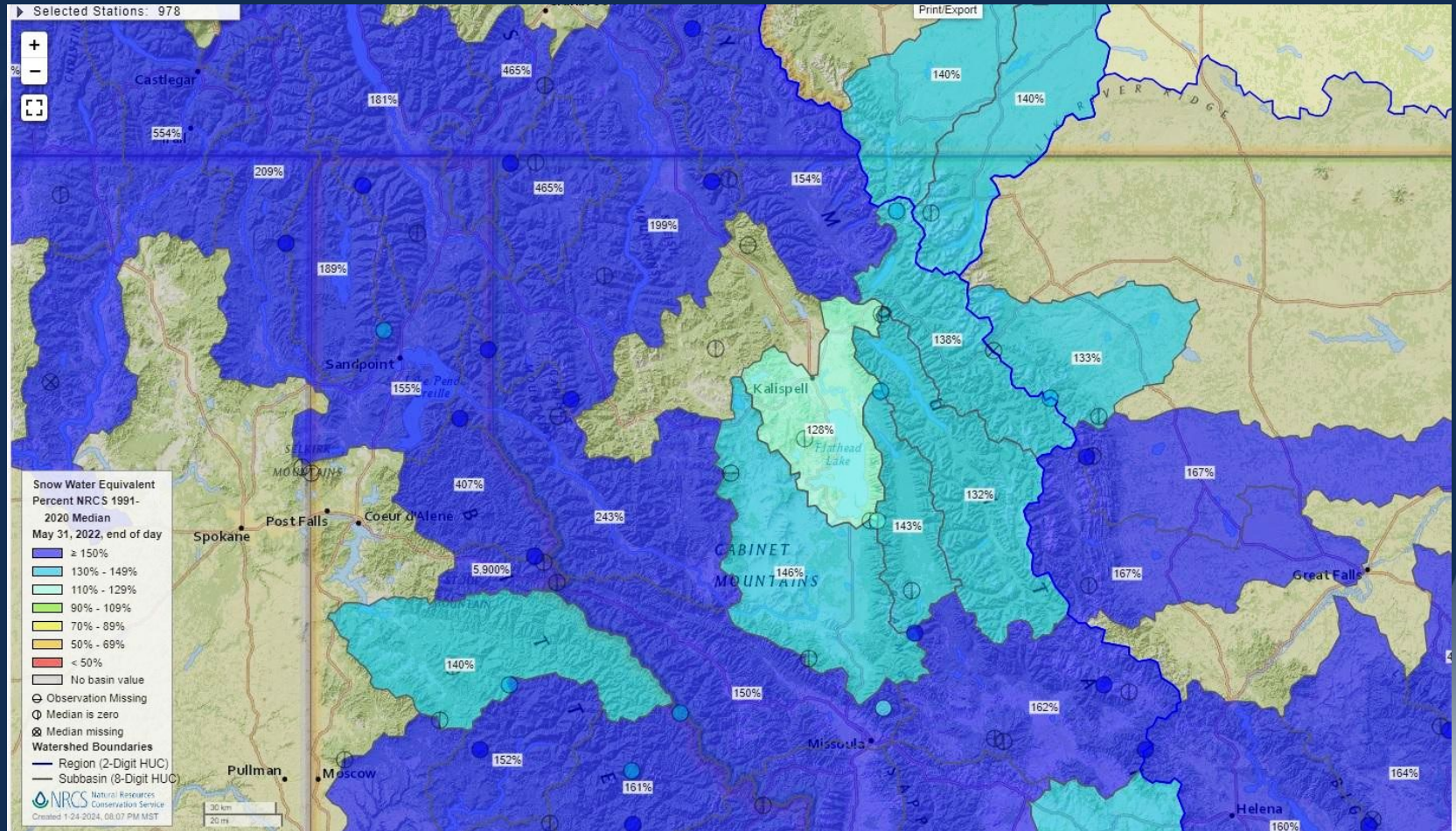
**Image:**  
Snow Water  
Equivalent % of  
Normal as of  
May 1, 2022.

Basins are  
110% to 122%  
of Normal.

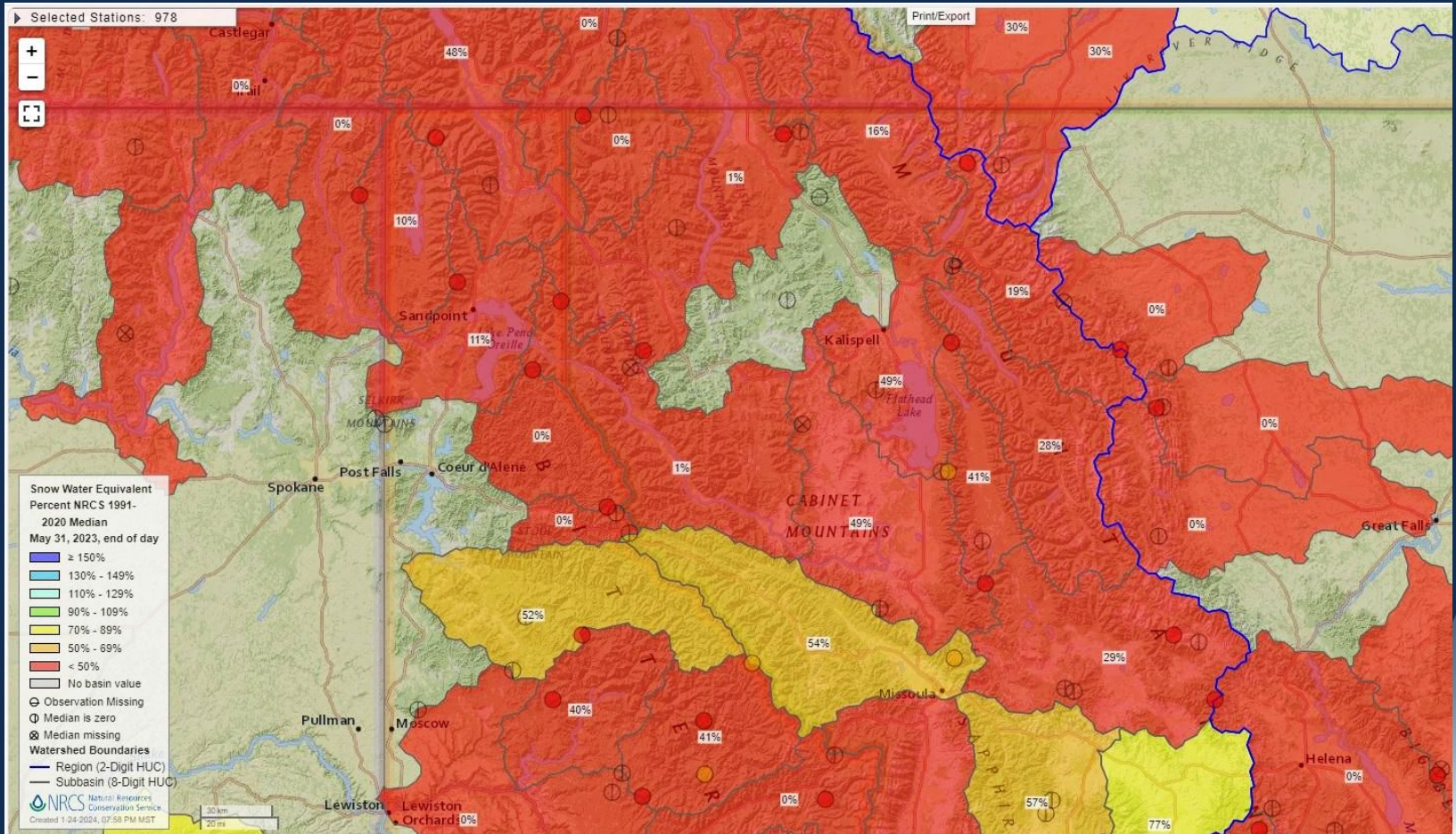
Basins are  
226% of  
Normal.



# By the end of May 2022...



# By the end of May 2023...



# So What Happened in 2023? (What made it so different?)

## A combination of factors:

- 1) April and May of 2023 were warmer, and were warmer much sooner than in 2022.
- 2) The rate of melting was accelerated in 2023 as a result.
- 3) Streamflows responded accordingly.



# April Temperature Trends: 2022 vs 2023

Climatological Data for KALISPELL GLACIER AIRPORT, MT - April 2022

Click column heading to sort ascending, click again to sort descending.

Date	Temperature				HDD	CDD	Precipitation	New Snow
	Maximum	Minimum	Average	Departure				
2022-04-01	49	24	36.5	-2.8	28	0	0.00	0.0
2022-04-02	46	21	33.5	-6.0	31	0	0.16	0.9
2022-04-03	53	19	36.0	-3.7	29	0	0.00	0.0
2022-04-04	47	25	36.0	-4.0	29	0	0.14	0.1
2022-04-05	47	31	39.0	-1.2	26	0	0.00	0.0
2022-04-06	53	23	38.0	-2.4	27	0	0.00	0.0
2022-04-07	58	19	38.5	-2.1	26	0	0.00	0.0
2022-04-08	61	24	42.5	1.6	22	0	0.00	0.0
2022-04-09	47	32	39.5	-1.6	25	0	T	T
2022-04-10	38	29	33.5	-7.8	31	0	0.03	T
2022-04-11	38	27	32.5	-9.0	32	0	0.08	0.5
2022-04-12	33	22	27.5	-14.3	37	0	0.00	0.0
2022-04-13	35	18	26.5	-15.5	38	0	0.00	0.0
2022-04-14	38	17	27.5	-14.7	37	0	0.00	0.0
2022-04-15	39	17	28.0	-14.5	37	0	0.00	0.0
2022-04-16	41	14	27.5	-15.2	37	0	T	T
2022-04-17	43	20	31.5	-11.5	33	0	0.10	1.0
2022-04-18	48	19	33.5	-9.7	31	0	0.00	0.0
2022-04-19	50	26	38.0	-5.5	27	0	0.01	T
2022-04-20	50	18	34.0	-9.7	31	0	0.01	T
2022-04-21	53	32	42.5	-1.5	22	0	0.33	0.0
2022-04-22	54	29	41.5	-2.8	23	0	0.01	0.0
2022-04-23	53	33	43.0	-1.6	22	0	0.02	0.0
2022-04-24	58	24	41.0	-3.9	24	0	T	0.0
2022-04-25	66	27	46.5	1.3	18	0	0.00	0.0
2022-04-26	52	32	42.0	-3.5	23	0	0.05	0.0
2022-04-27	52	27	39.5	-6.3	25	0	T	0.0
2022-04-28	53	26	39.5	-6.6	25	0	0.00	0.0
2022-04-29	54	25	39.5	-6.9	25	0	0.04	0.0
2022-04-30	57	23	40.0	-6.7	25	0	T	0.0
<b>Sum</b>	1466	723	-	-	846	0	0.98	2.5
<b>Average</b>	48.9	24.1	36.5	-6.2	-	-	-	-
<b>Normal</b>	55.0	30.5	42.7	-	668	0	1.34	1.2

Climatological Data for KALISPELL GLACIER AIRPORT, MT - April 2023

Click column heading to sort ascending, click again to sort descending.

Date	Temperature				HDD	CDD	Precipitation	New Snow
	Maximum	Minimum	Average	Departure				
2023-04-01	46	24	35.0	-4.3	30	0	0.09	1.0
2023-04-02	41	14	27.5	-12.0	37	0	0.01	0.1
2023-04-03	45	19	32.0	-7.7	33	0	0.00	0.0
2023-04-04	47	23	35.0	-5.0	30	0	0.00	0.0
2023-04-05	46	19	32.5	-7.7	32	0	T	T
2023-04-06	53	28	40.5	0.1	24	0	0.00	0.0
2023-04-07	57	24	40.5	-0.1	24	0	0.02	0.0
2023-04-08	55	39	47.0	6.1	18	0	T	0.0
2023-04-09	65	32	48.5	7.4	16	0	0.00	0.0
2023-04-10	69	41	55.0	13.7	10	0	T	0.0
2023-04-11	53	32	42.5	1.0	22	0	T	0.0
2023-04-12	49	23	36.0	-5.8	29	0	0.00	0.0
2023-04-13	48	22	35.0	-7.0	30	0	0.02	T
2023-04-14	49	25	37.0	-5.2	28	0	0.02	T
2023-04-15	55	20	37.5	-5.0	27	0	0.00	0.0
2023-04-16	65	34	49.5	6.8	15	0	0.01	0.0
2023-04-17	49	26	37.5	-5.5	27	0	0.00	0.0
2023-04-18	43	24	33.5	-9.7	31	0	0.05	T
2023-04-19	45	33	39.0	-4.5	26	0	0.00	0.0
2023-04-20	45	32	38.5	-5.2	26	0	0.10	T
2023-04-21	50	29	39.5	-4.5	25	0	0.01	T
2023-04-22	49	30	39.5	-4.8	25	0	0.00	0.0
2023-04-23	59	26	42.5	-2.1	22	0	0.00	0.0
2023-04-24	55	39	47.0	2.1	18	0	0.11	0.0
2023-04-25	60	32	46.0	0.8	19	0	0.00	0.0
2023-04-26	64	31	47.5	2.0	17	0	0.00	0.0
2023-04-27	62	30	46.0	0.2	19	0	0.00	0.0
2023-04-28	70	25	47.5	1.4	17	0	0.00	0.0
2023-04-29	76	32	54.0	7.6	11	0	0.00	0.0
2023-04-30	82	39	60.5	13.8	4	0	0.00	0.0
<b>Sum</b>	1652	847	-	-	692	0	0.44	1.1
<b>Average</b>	55.1	28.2	41.7	-1.0	-	-	-	-
<b>Normal</b>	55.0	30.5	42.7	-	668	0	1.34	1.2

# May Temperature Trends: 2022 vs 2023

Climatological Data for KALISPELL GLACIER AIRPORT, MT - May 2022

Click column heading to sort ascending, click again to sort descending.

Date	Temperature				HDD	CDD	Precipitation	New Snow
	Maximum	Minimum	Average	Departure				
2022-05-01	63	40	51.5	4.5	13	0	0.00	0.0
2022-05-02	68	34	51.0	3.6	14	0	0.00	0.0
2022-05-03	69	44	56.5	8.8	8	0	T	0.0
2022-05-04	66	45	55.5	7.5	9	0	0.00	0.0
2022-05-05	68	39	53.5	5.1	11	0	0.06	0.0
2022-05-06	60	45	52.5	3.8	12	0	0.04	0.0
2022-05-07	54	42	48.0	-1.1	17	0	0.04	0.0
2022-05-08	49	30	39.5	-9.9	25	0	0.00	0.0
2022-05-09	47	30	38.5	-11.2	26	0	0.10	T
2022-05-10	56	28	42.0	-8.0	23	0	0.02	0.0
2022-05-11	61	23	42.0	-8.4	23	0	0.00	0.0
2022-05-12	60	32	46.0	-4.7	19	0	0.00	0.0
2022-05-13	52	25	38.5	-12.5	26	0	0.00	0.0
2022-05-14	53	21	37.0	-14.3	28	0	T	0.0
2022-05-15	65	30	47.5	-4.1	17	0	0.00	0.0
2022-05-16	69	36	52.5	0.6	12	0	0.00	0.0
2022-05-17	65	39	52.0	-0.2	13	0	0.00	0.0
2022-05-18	54	32	43.0	-9.5	22	0	0.05	0.0
2022-05-19	45	37	41.0	-11.7	24	0	0.18	0.0
2022-05-20	52	37	44.5	-8.5	20	0	0.01	0.0
2022-05-21	57	30	43.5	-9.7	21	0	0.00	0.0
2022-05-22	62	25	43.5	-10.0	21	0	0.00	0.0
2022-05-23	64	29	46.5	-7.2	18	0	0.00	0.0
2022-05-24	62	37	49.5	-4.4	15	0	0.00	0.0
2022-05-25	54	40	47.0	-7.1	18	0	0.09	0.0
2022-05-26	71	33	52.0	-2.3	13	0	0.00	0.0
2022-05-27	67	50	58.5	4.0	6	0	0.42	0.0
2022-05-28	57	44	50.5	-4.2	14	0	0.16	0.0
2022-05-29	64	40	52.0	-2.8	13	0	T	0.0
2022-05-30	66	50	58.0	3.0	7	0	0.00	0.0
2022-05-31	68	41	54.5	-0.7	10	0	0.00	0.0
<b>Sum</b>	1868	1108	-	-	518	0	1.17	T
<b>Average</b>	60.3	35.7	48.0	-3.6	-	-	-	-
<b>Normal</b>	65.1	38.1	51.6	-	417	1	1.84	0.2

Climatological Data for KALISPELL GLACIER AIRPORT, MT - May 2023

Click column heading to sort ascending, click again to sort descending.

Date	Temperature				HDD	CDD	Precipitation	New Snow
	Maximum	Minimum	Average	Departure				
2023-05-01	86	48	67.0	20.0	0	2	0.00	0.0
2023-05-02	85	53	69.0	21.6	0	4	0.00	0.0
2023-05-03	82	48	65.0	17.3	0	0	0.00	0.0
2023-05-04	85	48	66.5	18.5	0	2	0.00	0.0
2023-05-05	66	49	57.5	9.1	7	0	0.17	0.0
2023-05-06	51	41	46.0	-2.7	19	0	1.14	0.0
2023-05-07	56	40	48.0	-1.1	17	0	0.30	0.0
2023-05-08	58	41	49.5	0.1	15	0	0.11	0.0
2023-05-09	68	33	50.5	0.8	14	0	0.18	0.0
2023-05-10	66	43	54.5	4.5	10	0	T	0.0
2023-05-11	71	37	54.0	3.6	11	0	0.00	0.0
2023-05-12	77	39	58.0	7.3	7	0	0.00	0.0
2023-05-13	76	41	58.5	7.5	6	0	0.00	0.0
2023-05-14	73	46	59.5	8.2	5	0	0.00	0.0
2023-05-15	79	45	62.0	10.4	3	0	0.00	0.0
2023-05-16	79	44	61.5	9.6	3	0	0.00	0.0
2023-05-17	72	50	61.0	8.8	4	0	T	0.0
2023-05-18	77	50	63.5	11.0	1	0	0.00	0.0
2023-05-19	81	46	63.5	10.8	1	0	0.00	0.0
2023-05-20	84	46	65.0	12.0	0	0	0.00	0.0
2023-05-21	82	47	64.5	11.3	0	0	T	0.0
2023-05-22	67	44	55.5	2.0	9	0	0.25	0.0
2023-05-23	68	34	51.0	-2.7	14	0	0.00	0.0
2023-05-24	72	46	59.0	5.1	6	0	0.01	0.0
2023-05-25	68	49	58.5	4.4	6	0	0.01	0.0
2023-05-26	65	49	57.0	2.7	8	0	0.10	0.0
2023-05-27	67	49	58.0	3.5	7	0	0.02	0.0
2023-05-28	71	49	60.0	5.3	5	0	0.00	0.0
2023-05-29	73	46	59.5	4.7	5	0	0.01	0.0
2023-05-30	78	39	58.5	3.5	6	0	0.00	0.0
2023-05-31	72	40	56.0	0.8	9	0	0.01	0.0
<b>Sum</b>	2255	1380	-	-	198	8	2.31	0.0
<b>Average</b>	72.7	44.5	58.6	7.0	-	-	-	-
<b>Normal</b>	65.1	38.1	51.6	-	417	1	1.84	0.2

- using custom time span -

# Flathead River at Columbia Falls MT -

## 12363000

May 1, 2022 - May 31, 2022

Gage height, feet

10.33 ft - May 31, 2022 10:45:00 PM MDT



**IMPORTANT** Data may be [provisional](#)

Gage height, feet

— Recorded

Data approval period

■ Approved

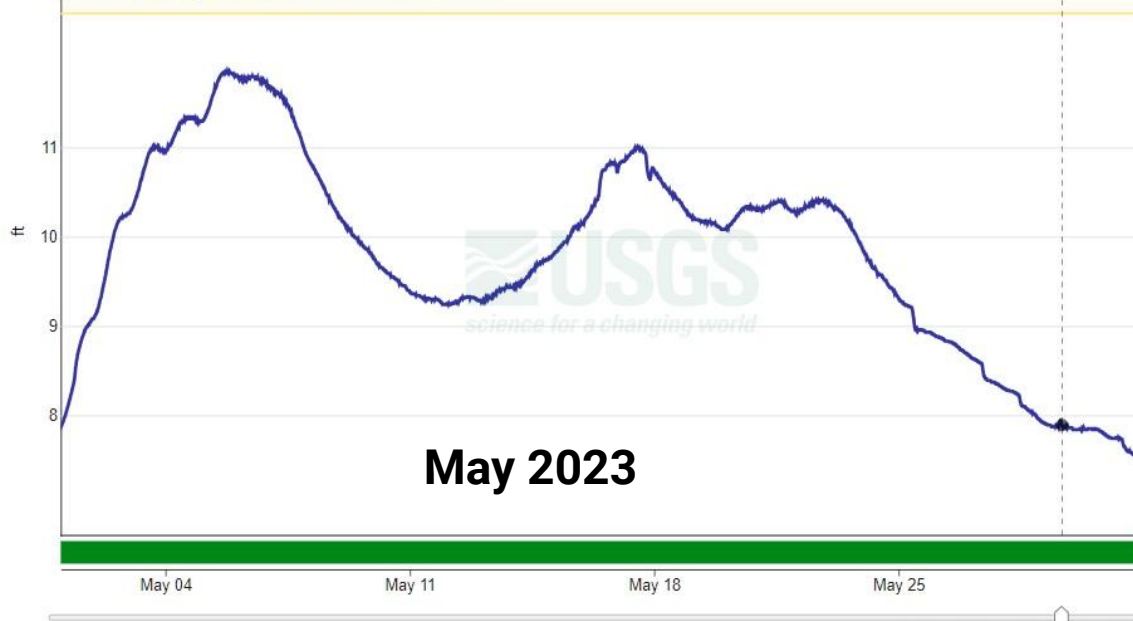
# Flathead River at Columbia Falls MT -

## 12363000

May 1, 2023 - May 31, 2023

Gage height, feet

7.89 ft - May 29, 2023 04:30:00 PM MDT



### May 2023

**IMPORTANT** Data may be [provisional](#)

Gage height, feet

— Recorded

Data approval period

■ Approved



# Thank you for your time.

Please reach out if you have questions:

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Now back to Chris Runyan.

