

An aerial photograph of a vast, snow-covered evergreen forest. A winding road or path cuts through the trees in the lower right. In the background, a large body of water is visible, surrounded by snow-dusted hills under a clear sky.

RioTinto

WEI – Winter & Spring Information Share

21 April 2021

Prepared by Andrew Czornohalan and Alec Mercier

Photo credit: Avison

Winter Flows & Temp. vs Other Y

- Higher than typical flows in the Nechako due to spillway releases and natural flows associated with mild temperatures.
- Winter discharges are higher than average for this time of year, but similar winter releases have been made in 5 out of the last 20 winters.
- Freeze and thaw cycles preventing solid ice pan until late in the winter

SLS - Historical									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	33	32	32	31	33	31	74	33	82
December	32	31	77	32	31	86	33	84	35

Nautley - Historical									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	8	9	8	8	9	24	17	11	24
December	12	9	10	13	26	18	11	35	10

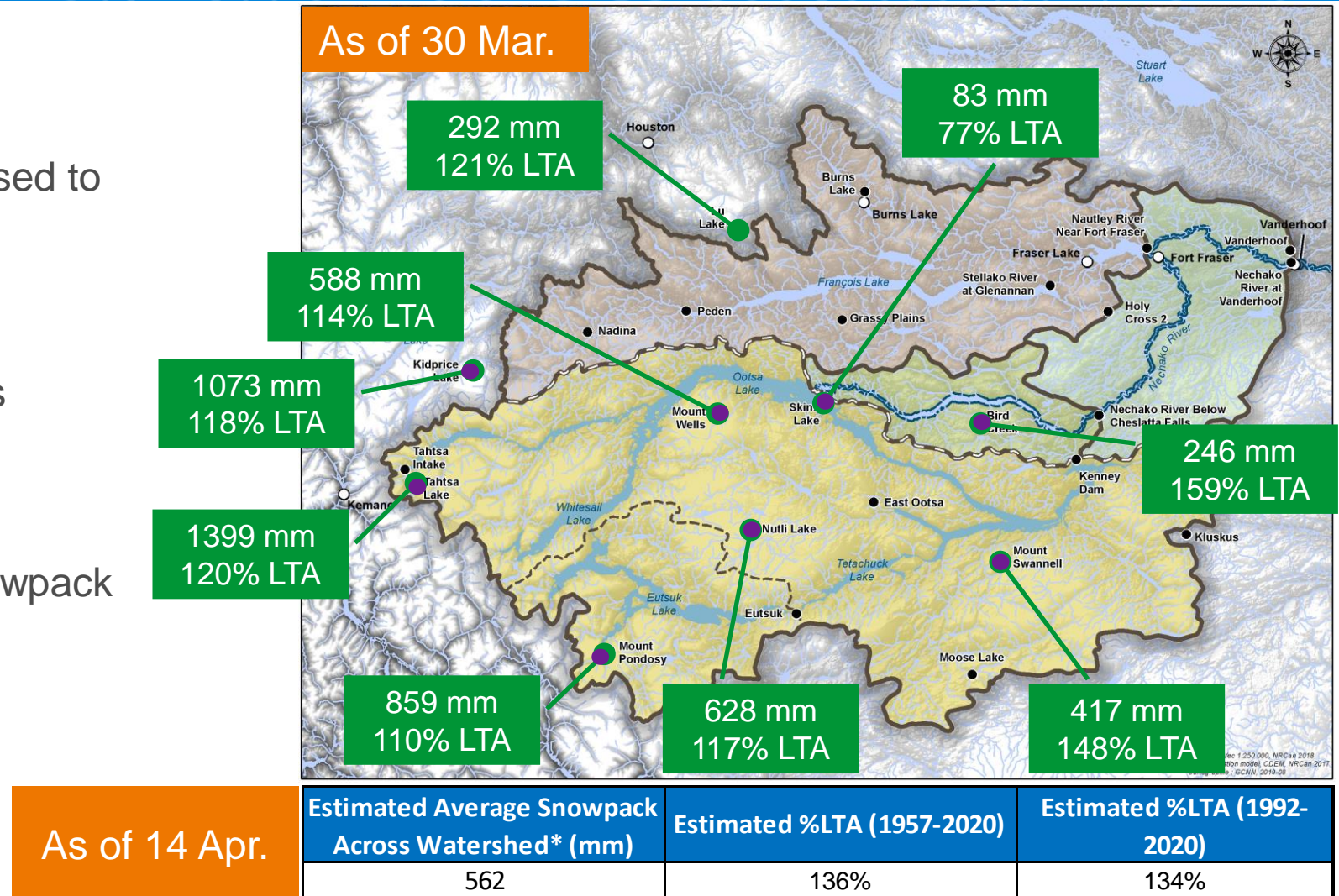
Vanderhoof - Historical									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	41	43	42	61	44	57	87	46	108
December	48	47	73	51	65	103	39	124	52

* 2000-2018: WSC data; 2019-2021: estimated

Date		2005			2007			2017			2020		
		2006			2008			2018			2021		
Month	Day	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
12	1	-18	-10	-13	-18	-13	-15	-9	1	-4	-8	3	-3
12	2	-17	-5	-12	-19	-15	-17	-14	-1	-7	-12	2	-5
12	3	-19	-2	-12	-21	-17	-19	-18	-3	-10	-13	-1	-7
12	4	-15	1	-8	-20	-16	-18	-14	-3	-8	-13	1	-6
12	5	-14	0	-3	-24	-14	-19	-10	1	-5	-5	4	0
12	6	-16	-5	-4	-30	-16	-23	-10	-1	-6	2	5	3
12	7	-13	-7	-6	-33	-20	-26	-7	-3	-5	2	6	4
12	8	-12	-4	-2	-34	-22	-28	-5	-3	-4	-1	5	2
12	9	-8	2	4	-30	-20	-25	-7	-3	-5	-7	0	-4
12	10	-1	8	7	-25	-15	-20	-9	-4	-7	-9	-2	-5
12	11	-3	8	6	-19	-8	-13	-11	-1	-6	-7	-1	-4
12	12	-7	4	3	-11	-3	-7	-10	0	-5	-6	-2	-4
12	13	-10	2	1	-8	-2	-5	-7	0	-3	-11	-5	-8
12	14	-13	-2	-4	-12	-2	-7	-3	0	-2	-13	-7	-10
12	15	-14	-7	-8	-13	-1	-7	-7	-2	-4	-13	-3	-8
12	16	-14	-8	-10	-11	1	-5	-12	-2	-7	-8	1	-3
12	17	-14	-9	-10	-12	1	-6	-9	0	-4	-4	2	-1
12	18	-14	-10	-11	-10	0	-5	-10	0	-5	-3	3	0
12	19	-13	-10	-12	-6	-1	-3	-16	-3	-10	-2	4	1
12	20	-14	-3	-10	-13	-2	-7	-19	-8	-13	-3	4	0
12	21	-9	4	-4	-23	-4	-13	-16	-8	-12	-7	1	-3
12	22	-4	4	-1	-16	-2	-9	-18	-8	-13	-10	-1	-6
12	23	-3	3	1	-6	2	-2	-25	-12	-18	-11	-2	-6
12	24	-2	4	2	-7	2	-2	-27	-17	-22	-9	-2	-5
12	25	0	4	2	-7	0	-4	-31	-20	-25	-6	-1	-3
12	26	-2	3	2	-13	-3	-8	-32	-20	-26	-6	0	-3
12	27	-4	4	1	-18	-8	-13	-31	-17	-24	-7	-1	-4
12	28	-5	3	-2	-18	-10	-14	-32	-17	-25	-8	-2	-5
12	29	-10	1	-5	-20	-11	-16	-28	-18	-23	-9	-4	-7
12	30	-10	1	-3	-22	-11	-16	-25	-18	-21	-9	-4	-7
12	31	-9	1	-2	-22	-11	-16	-28	-17	-23	-10	-2	-6
1	1	-9	1	-3	-22	-9	-15	-26	-14	-20	-11	1	-5
1	2	-9	4	-2	-13	-1	-7	-22	-11	-17	-8	4	-2
1	3	-12	2	-5	-5	2	-1	-19	-9	-14	-8	4	-2
1	4	-13	-1	-8	-3	3	0	-16	-7	-11	-12	1	-5
1	5	-8	4	-1	-3	3	0	-11	-2	-7	-12	1	-6
1	6	-7	3	-1	-11	0	-6	-10	0	-5	-11	4	-3
1	7	-9	-3	-8	-21	-8	-14	-9	-2	-5	-13	3	-5
1	8	-8	-2	-6	-24	-8	-16	-9	-1	-6	-13	1	-6
1	9	-9	1	-4	-22	-6	-14	-13	-4	-10	-13	1	-6
1	10	-12	-2	-5	-13	-5	-9	-18	-11	-14	-10	1	-4
1	11	-9	-4	-6	-10	-2	-6	-23	-18	-18	-4	4	0
1	12	-7	-3	-7	-15	0	-8	-28	-20	-23	-4	5	1
1	13	-7	0	-7	-12	2	-5	-25	-14	-19	-5	3	-1
1	14	-10	-2	-6	-10	1	-5	-14	-5	-10	-9	1	-4
1	15	-13	-4	-6	-16	-3	-10	-8	0	-4	-10	3	-3
1	16	-12	-1	-5	-15	-2	-8	-6	1	-3	-7	3	-2
1	17	-6	2	-2	-8	3	-3	-8	2	-3	-6	2	-2
1	18	-6	3	-1	-6	2	-2	-6	3	-1	-8	4	-2
1	19	-11	1	-4	-6	0	-3	-7	1	-3	-5	5	0
1	20	-10	-1	-6	-15	-4	-10	-13	0	-6	-7	3	-2
1	21	-11	0	-5	-23	-10	-17	-9	3	-3	-15	-4	-9
1	22	-8	4	0	-25	-13	-19	-9	2	-4	-17	-9	-13
1	23	-1	6	4	-26	-14	-20	-14	-1	-7	-15	-10	-13
1	24	-1	5	4	-24	-11	-18	-12	0	-6	-11	-8	-10
1	25	-2	6	2	-25	-7	-16	-9	-1	-5	-9	-6	-8
1	26	-3	4	-1	-19	-3	-11	-13	-5	-9	-9	-4	-7
1	27	-8	0	-3	-18	-6	-12	-20	-7	-14	-13	-5	-9
1	28	-9	0	-1	-31	-18	-24	-24	-7	-15	-22	-11	-16
1	29	-11	-1	-3	-31	-23	-27	-20	-4	-12	-20	-11	-16
1	30	-13	-2	-4	-24	-18	-21	-15	-4	-9	-15	-8	-11
1	31	-14	0	-2	-22	-13	-18	-14	-2	-8	-15	-4	-9

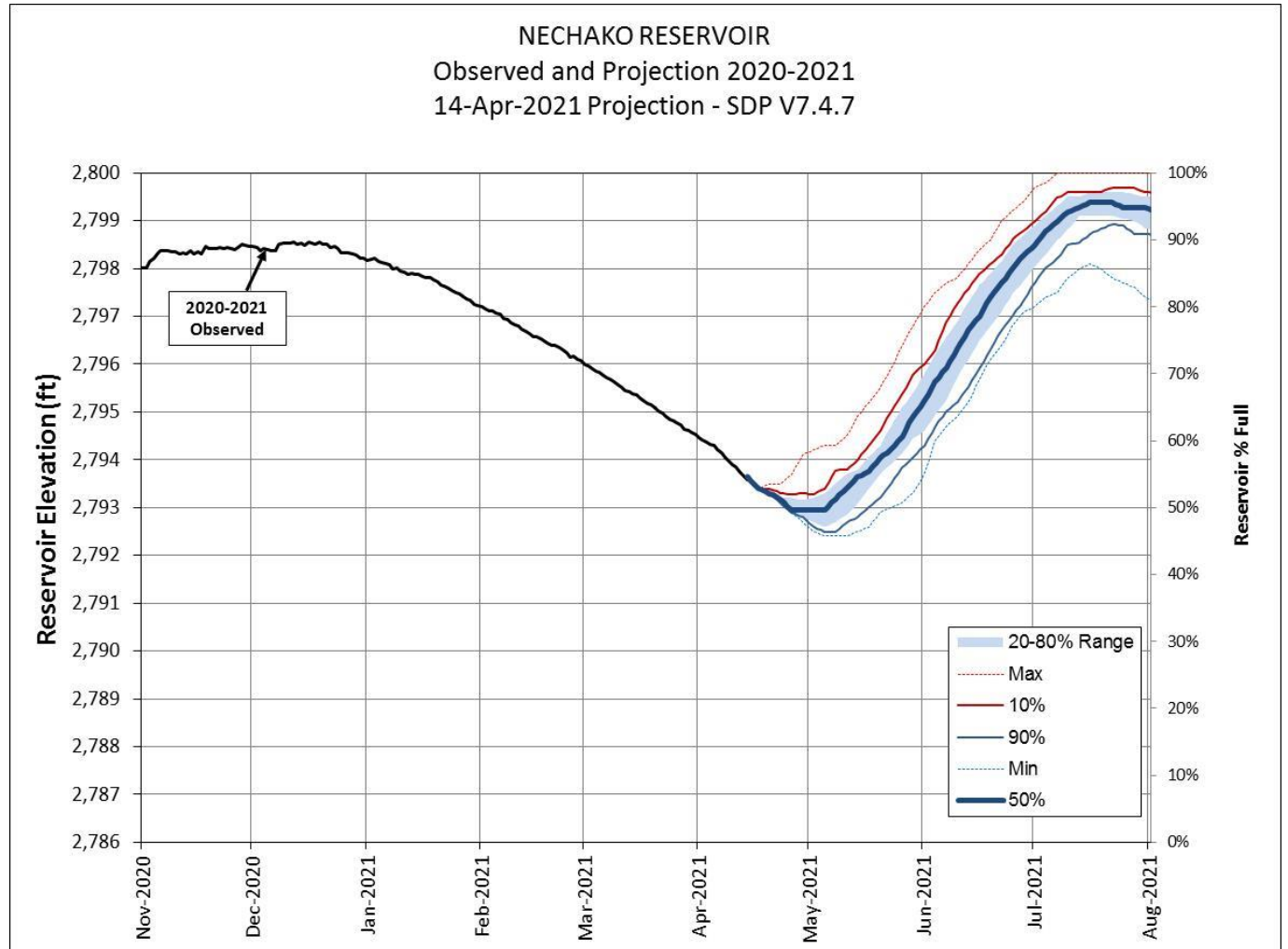
Current Watershed Data – Snow Water Equivalent

- The Snow Water Equivalent is used to calculate potential inflow to the reservoir and river discharge projections.
- 30 March manual snow survey is shown on the map.
- Next monthly survey end of April
- As of 14 April, total reservoir snowpack is now 136% of LTA

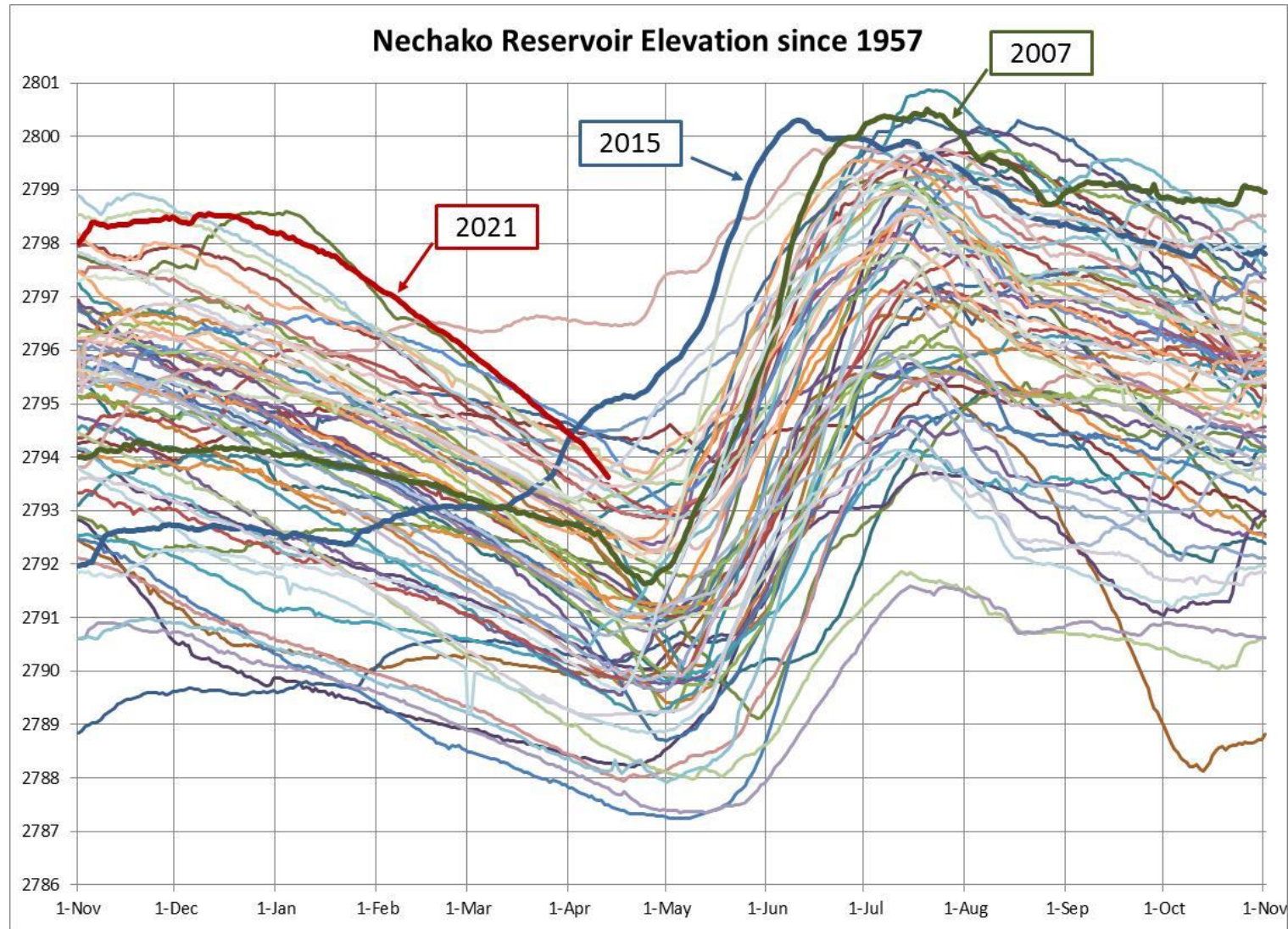


Freshet Forecast & Next Steps – Reservoir Level Projection

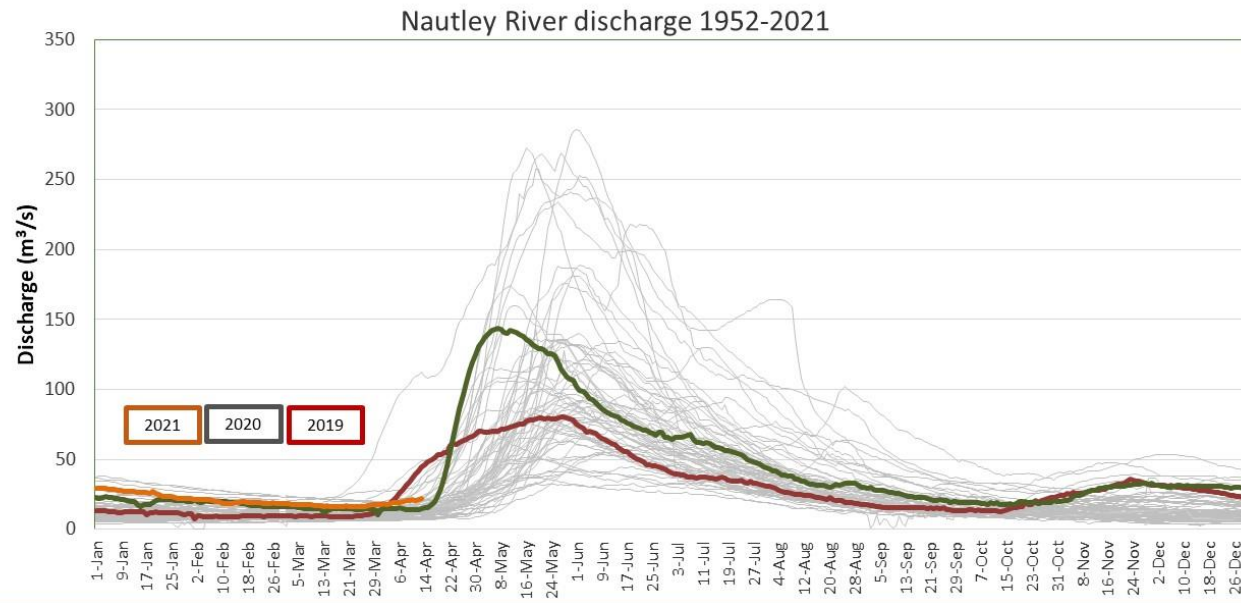
- Inflow projections are used to estimate reservoir levels over time considering current SWE and historically observed additional snow and rain.
- As of 1 April, the average projection equates to about 120-125% of the long-term average inflow volume.
- Additional snow, rain and inflow to the reservoir until the end of the Spring freshet will determine the total inflow, reservoir elevation and spillway discharge.



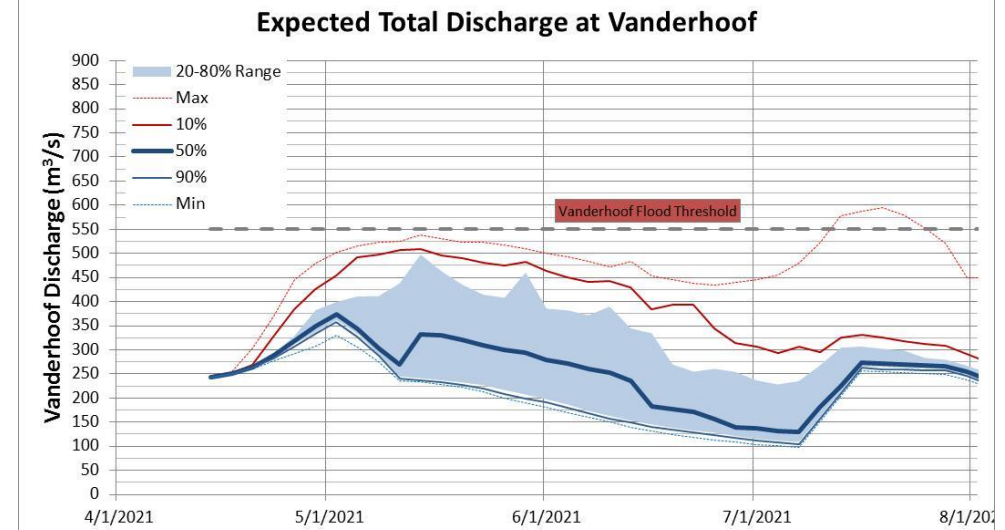
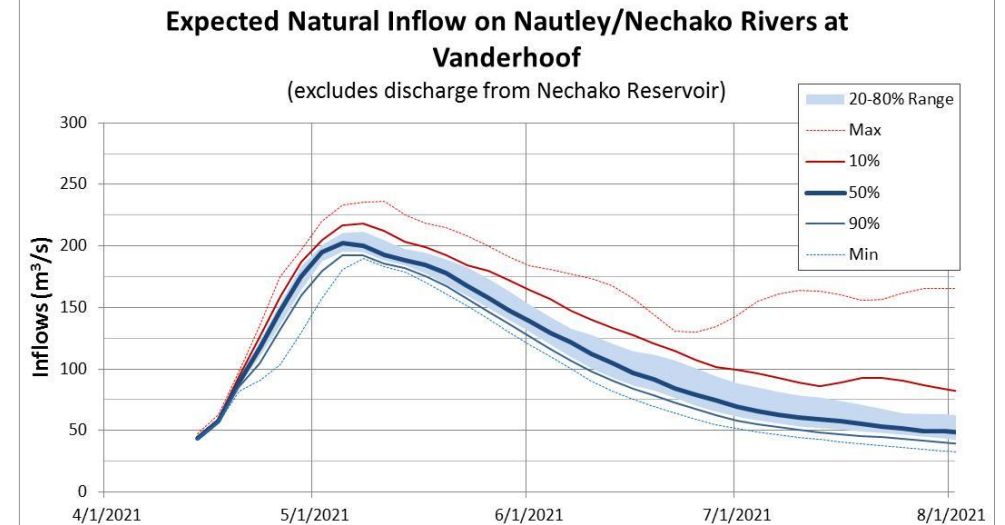
Historical Reservoir Elevation



Freshet Forecast – River Flows



- Nautley River discharge during spring can be a critical factor in total Nechako River discharge.
- Cheslatta Lake high water impact risk is <5%
- Modelling suggests that average spill of 150 m^3/s is required between now and 10 July.



Current Conditions - 8 April 2021

Nechako Reservoir
Snowpack is approx.
132% of long-term average



58% full

Current inflow
94 m³/s

8 April 2021

58% full

1 May 2021
(projection)

47% full

Current outflow
340 m³/s

Nautley Watershed
Snowpack is approx.
110% of long-term average



Cheslatta Falls
124 m³/s

Nautley River
20 m³/s

Stuart River
Snowpack is approx.
139% of long-term average



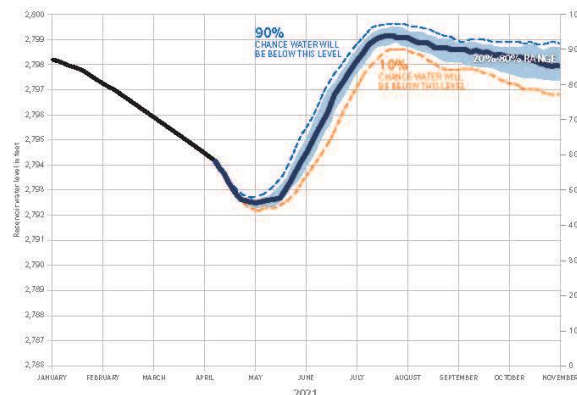
Vanderhoof
145 m³/s

Stuart River
60 m³/s

Prince George
240 m³/s

Fraser River

Nechako Reservoir water level projection - 8 April 2021



Nechako Reservoir operations update

- Skins Lake Spillway discharge was recently increased to 199 m³/s in anticipation of Spring freshet.
- Based on current conditions there is a 90% probability that the Nechako Reservoir will not fill completely in 2021
- For real time information and updates visit getinvolvednechako.ca
- To subscribe to weekly updates email us at nechakoreservoirupdates@riotinto.com

Questions & Reflections



Photo credit: Avison