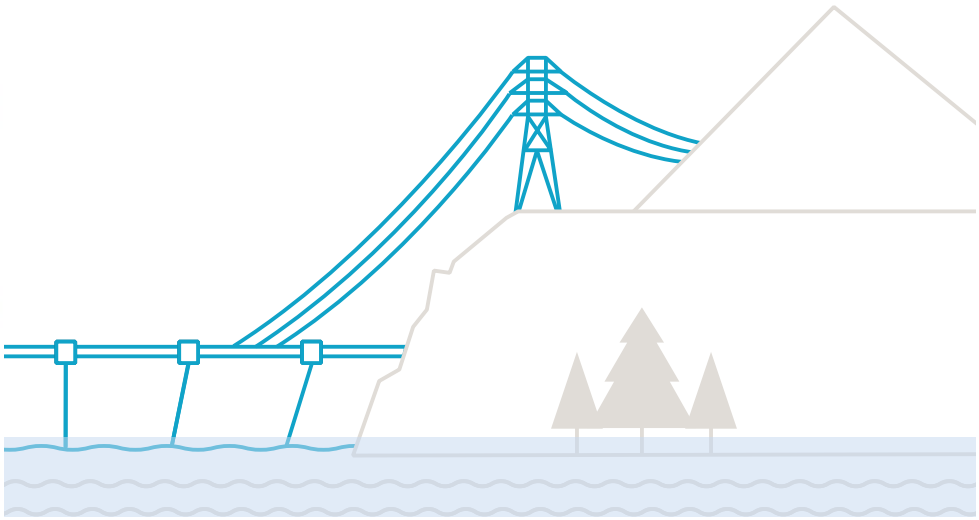


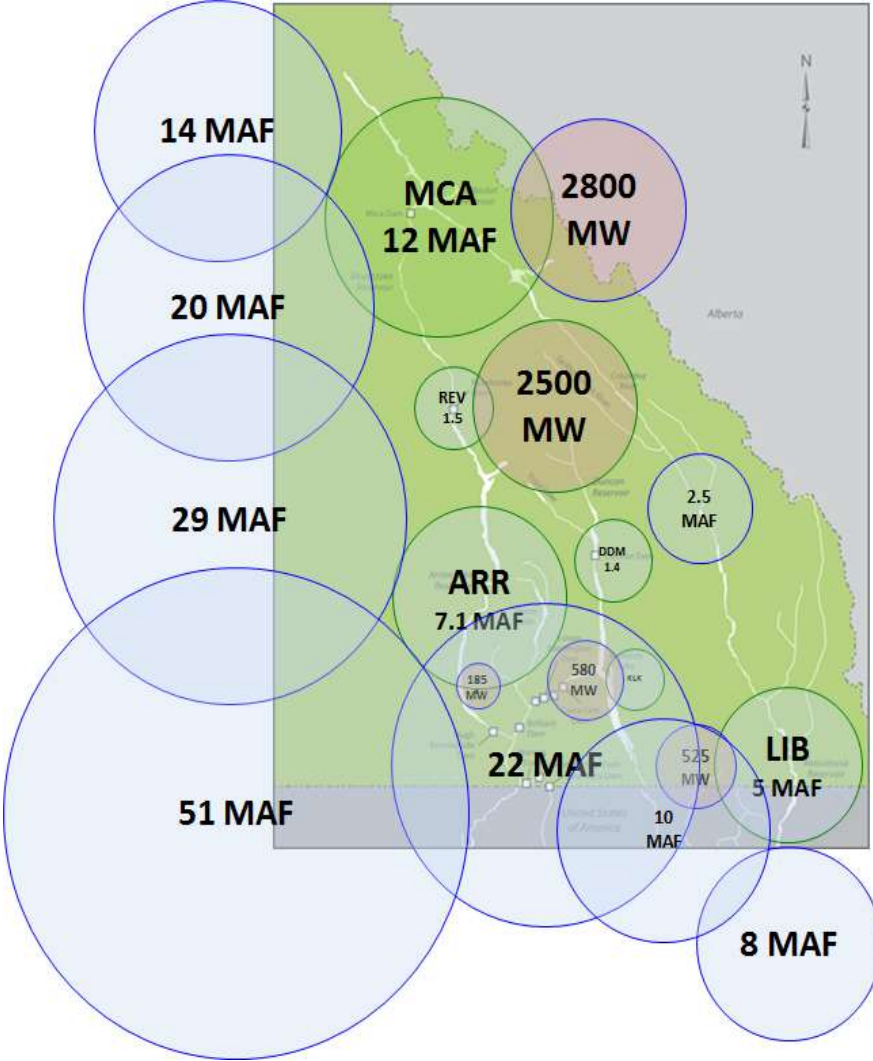
Columbia Operations Update

3 DEC 2017

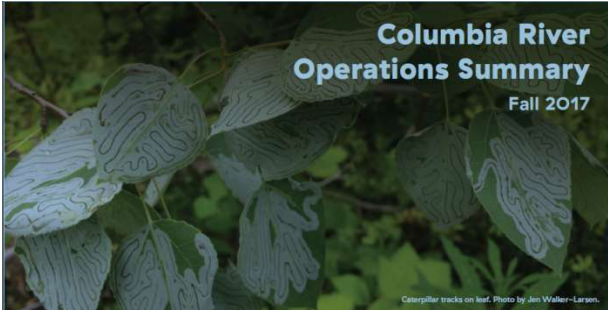


Columbia Basin Comparative Map

1 DEC 2017



Inflow (Blue)
Storage (Green)
Capacity (Red)

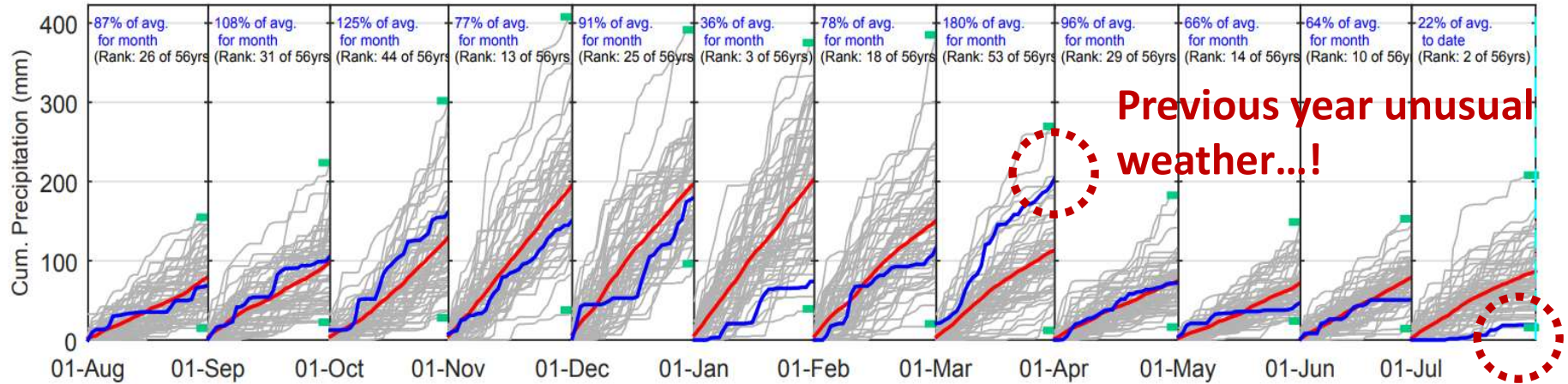


Precip: Compare Aug 2016 to Jul 2017

Mica

CRT Year 2017

Updated 01-Dec-2017 13:41:13

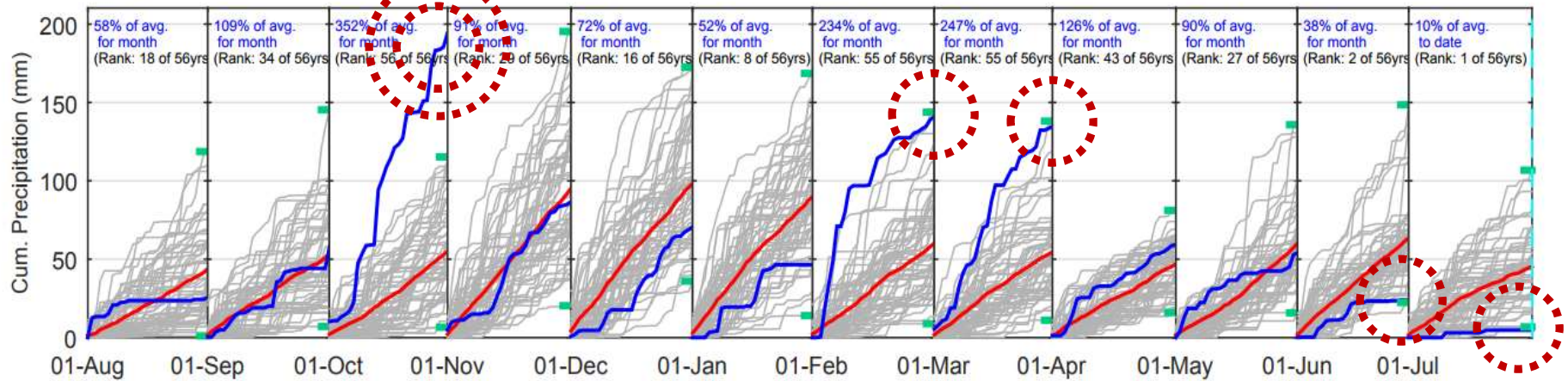


Previous year unusual weather...!

Kootenay

CRT Year 2017

Updated 01-Dec-2017 13:41:06

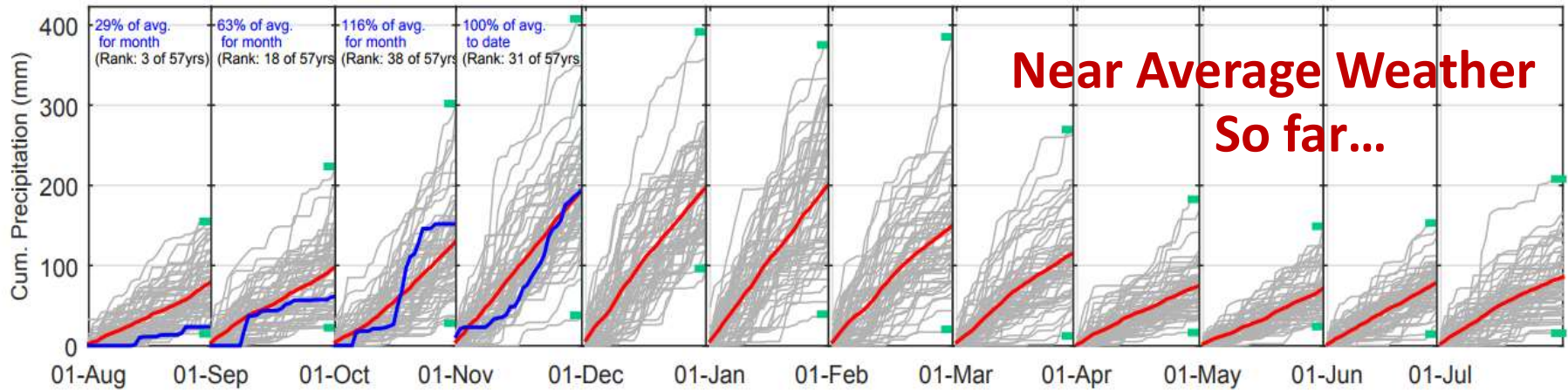


Precip Summary: Aug 2017 to Nov 2017

Mica

CRT Year 2018

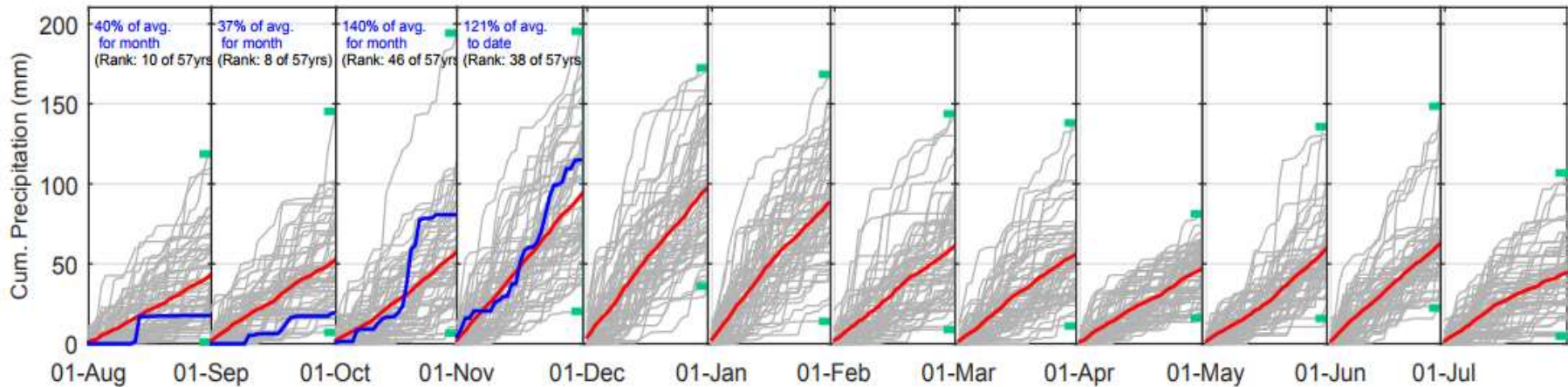
Updated 01-Dec-2017 13:13:39



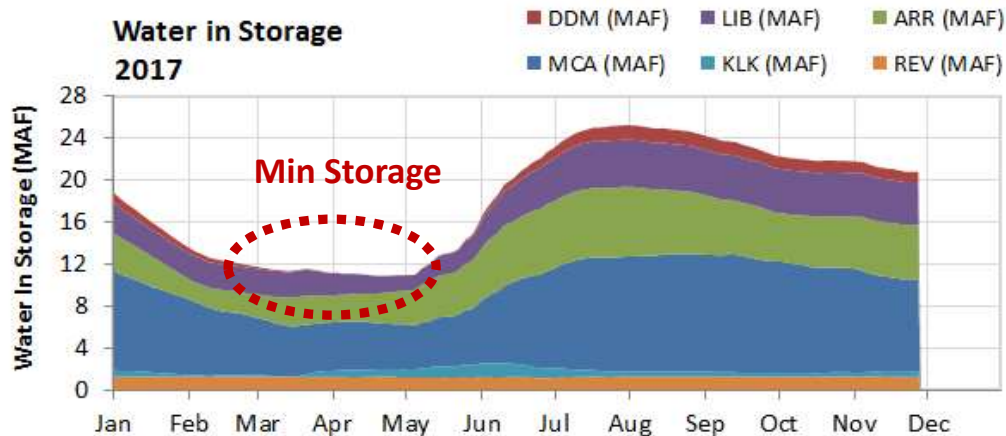
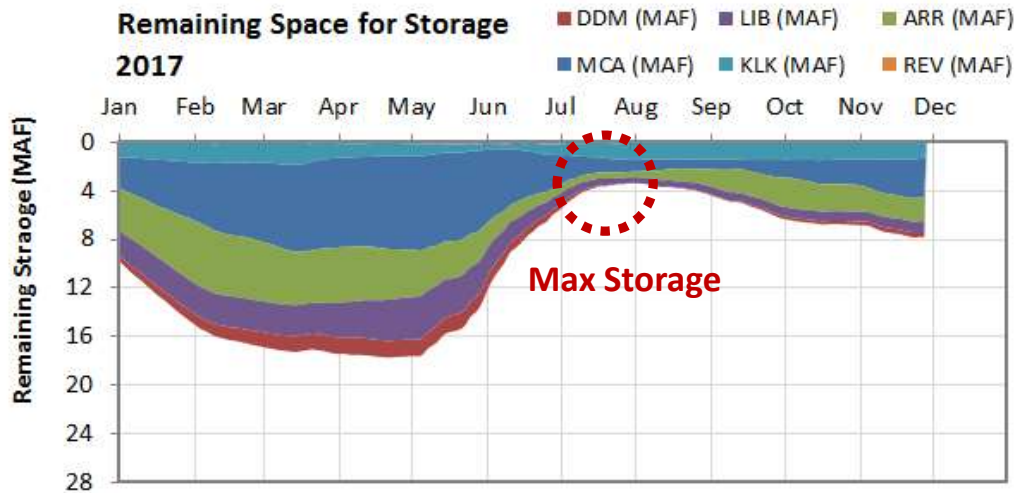
Kootenay

CRT Year 2018

Updated 01-Dec-2017 13:13:34



System Storage Summary

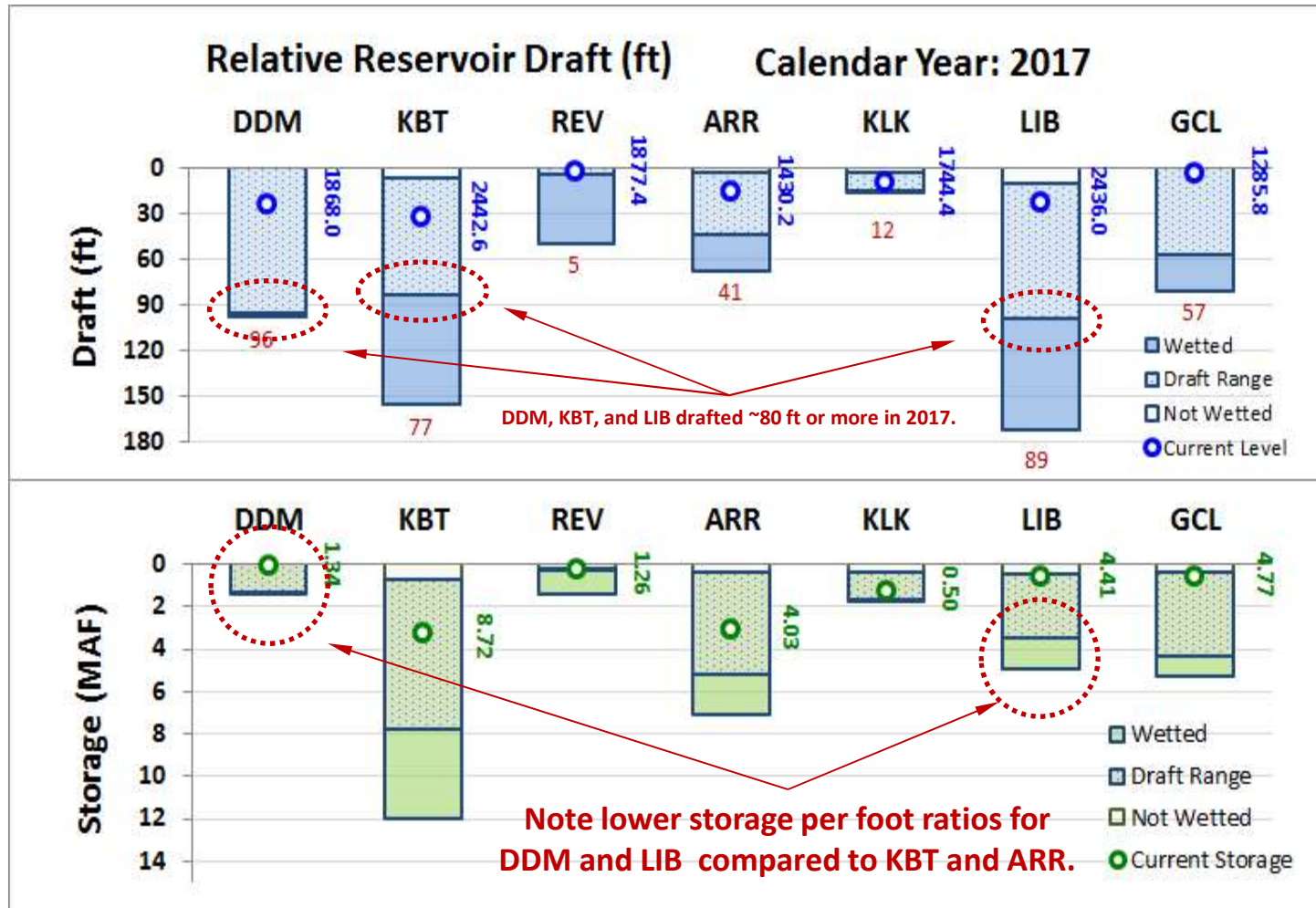


- System storage maximized mid Jul to Aug: ~20 MAF.
- System storage at minimum mid Mar: ~11.5 MAF.
- Bulk of seasonal storage swing in MCA, ARR, and LIB.



Arrow Lakes Reservoir. Photo by Jen Walker-Larsen.

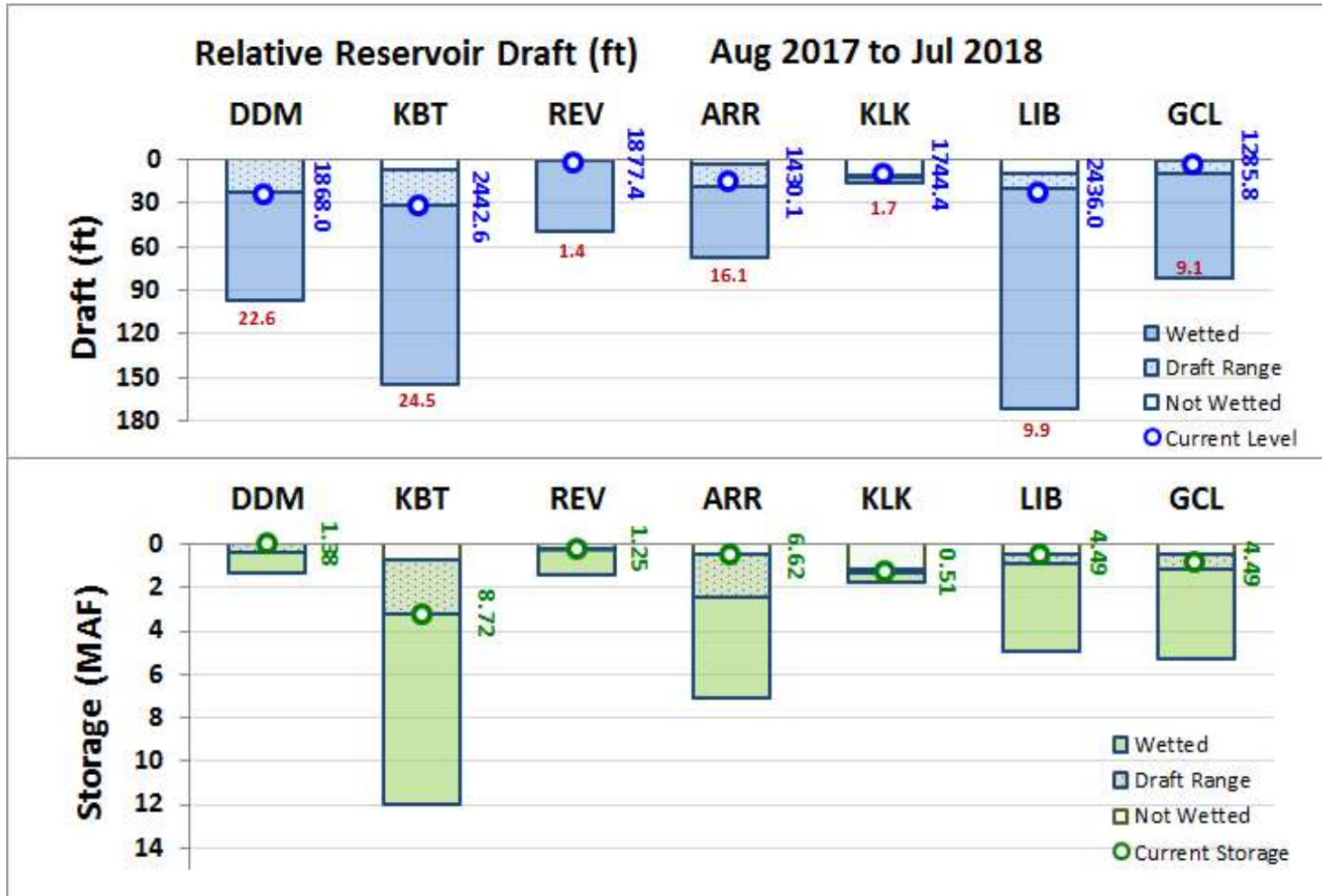
Relative Reservoir Draft: Calendar Year



- Reservoirs generally cycling from full fall storage into winter drafts.
- Deepest full drafts in DDM, KBT, and LIB. However, KBT and LIB only drafted to ~1/2 their max possible draft.

Duncan (DDM)
 Kinbasket (KBT)
 Revelstoke (REV)
 Arrow (ARR)
 Kootenay Lake (KLK)
 Kooconusa (LIB)
 Roosevelt (GCL)

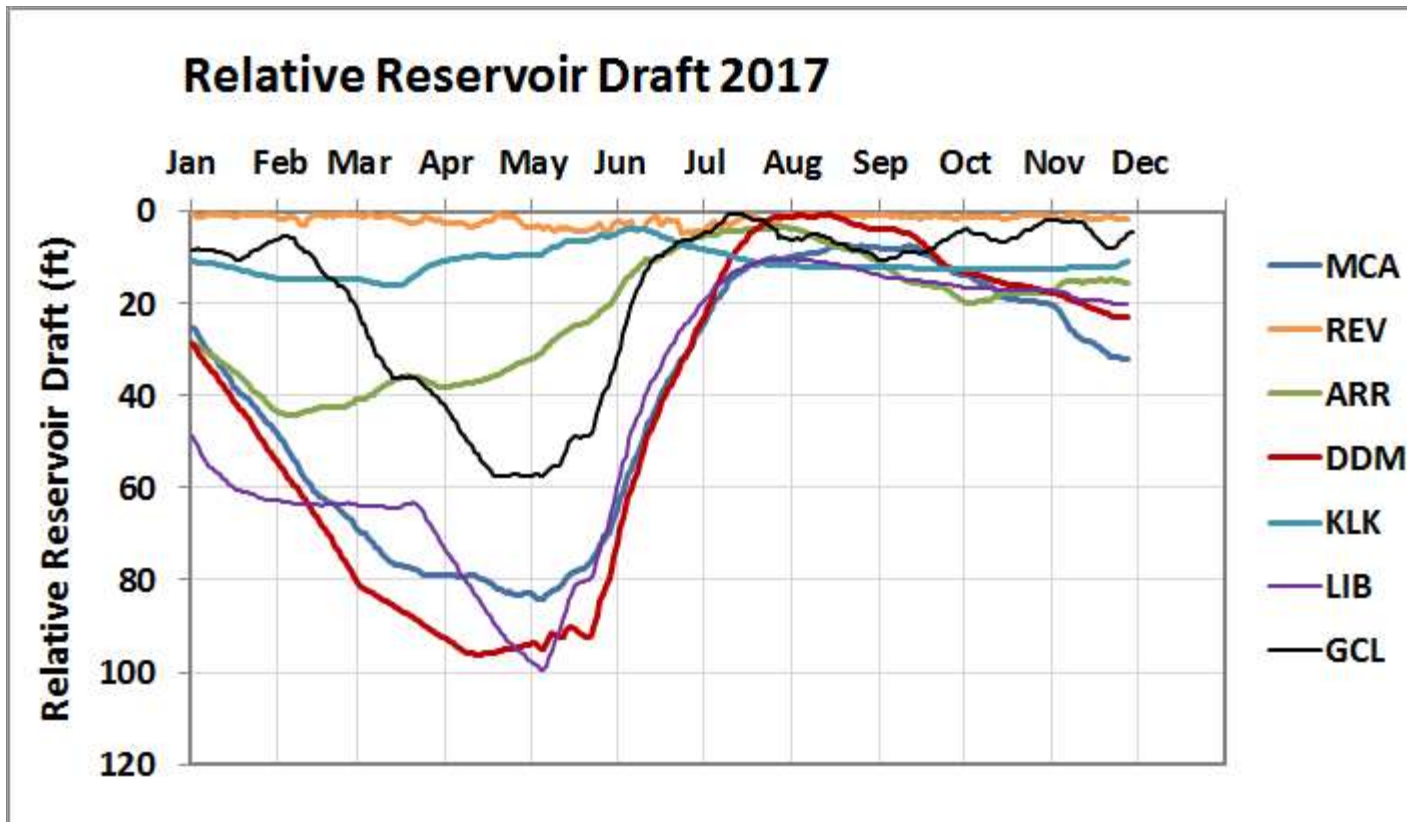
Relative Reservoir Draft: 4 months of CRT Year



- Data for Aug 2017 to Nov 2017 (~4 months)
- Reservoirs generally cycling from full fall storage into winter drafts.
- Only KLK and LIB were not at full pool as of Aug 1, 2017.
- System storage content mostly in KBT, ARR, LIB, and GCL as of Nov 2017.

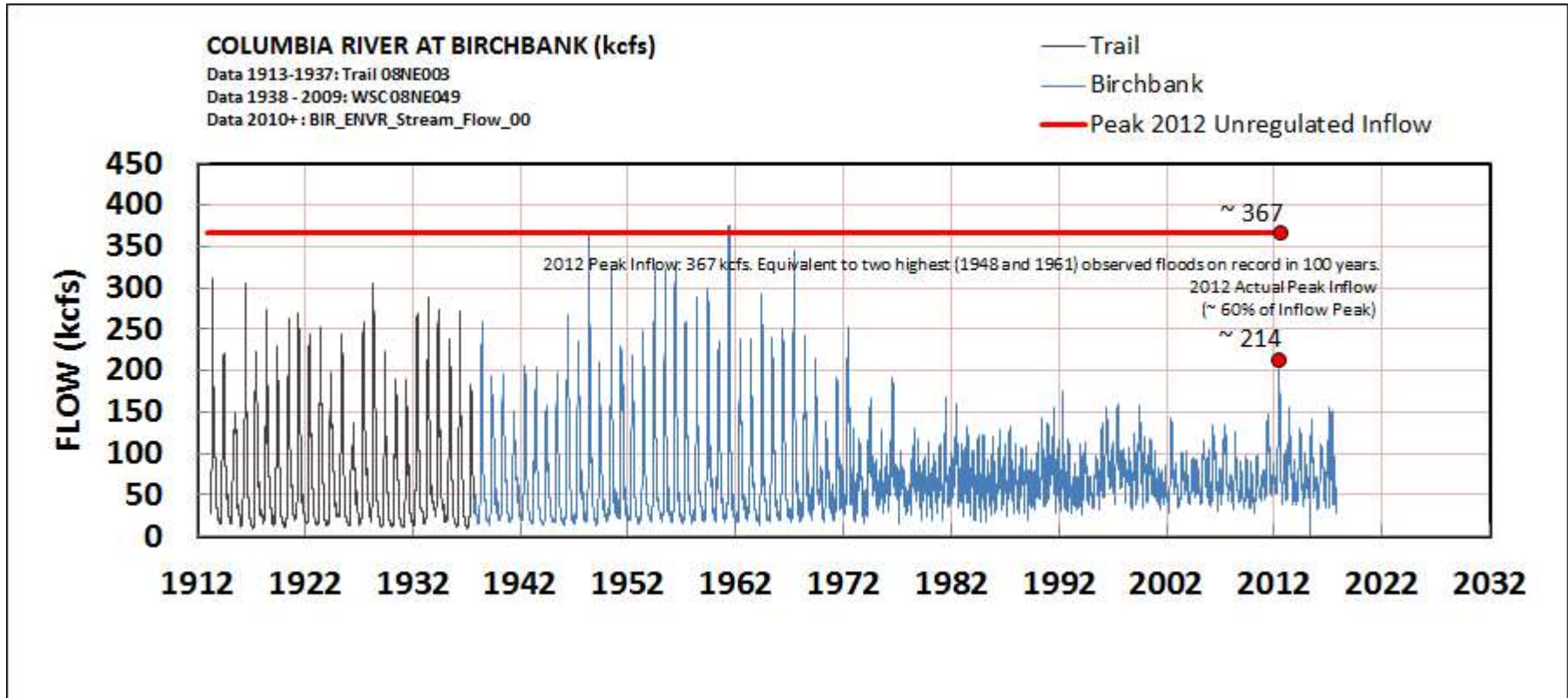
Duncan (DDM)
 Kinbasket (KBT)
 Revelstoke (REV)
 Arrow (ARR)
 Kootenay Lake (KLK)
 Kooconusa (LIB)
 Roosevelt (GCL)

Relative Reservoir Draft and Storage

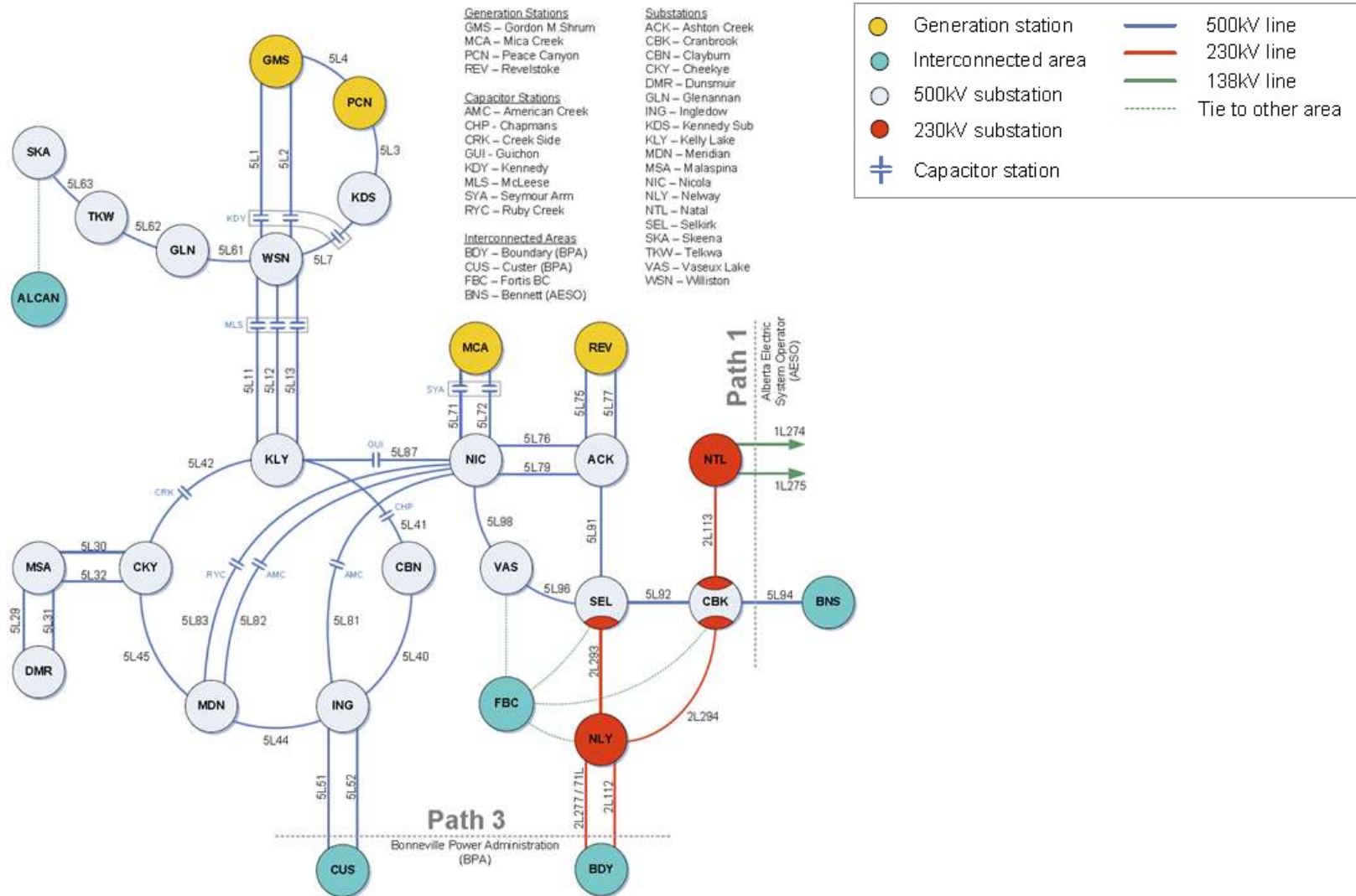


- Reservoirs generally cycling from full fall storage into winter drafts.
- Only KLK and LIB were not at full pool as of Aug 1, 2017.
- System storage content mostly in KBT and ARR as of Nov 2017.
- Revelstoke has ~50' storage under its water licence. Kept near full pool under most circumstance for head gains.

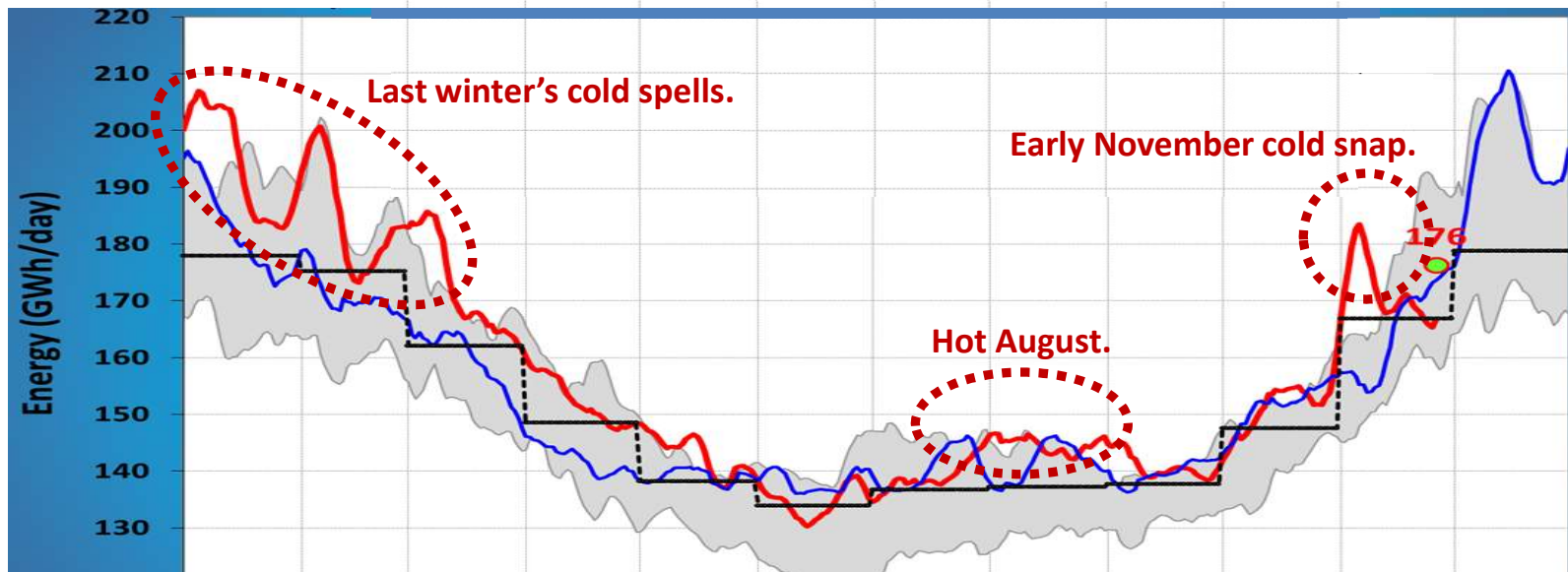
Birchbank Flows: Historical and Present



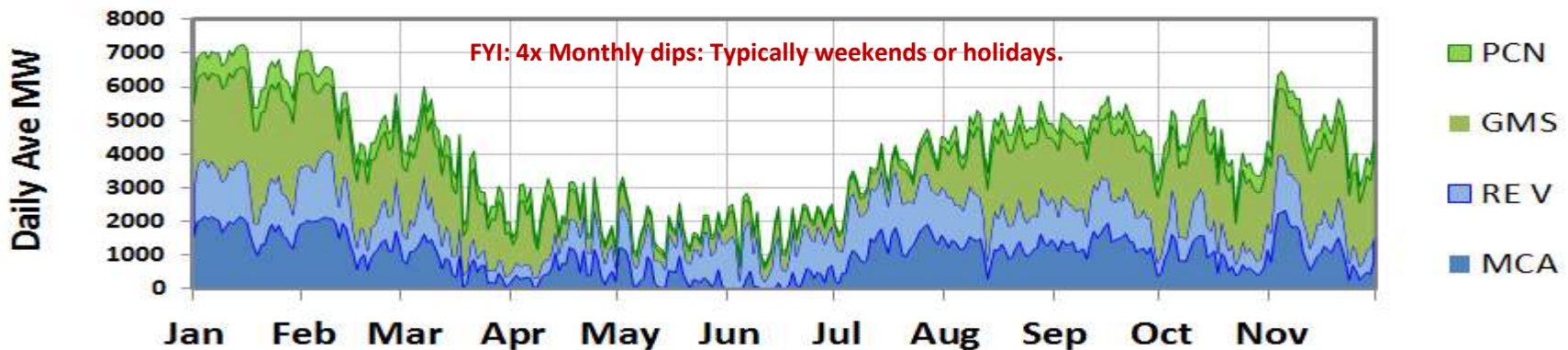
2017 System Operations



System Load (Jan 2017 to Nov 2017)



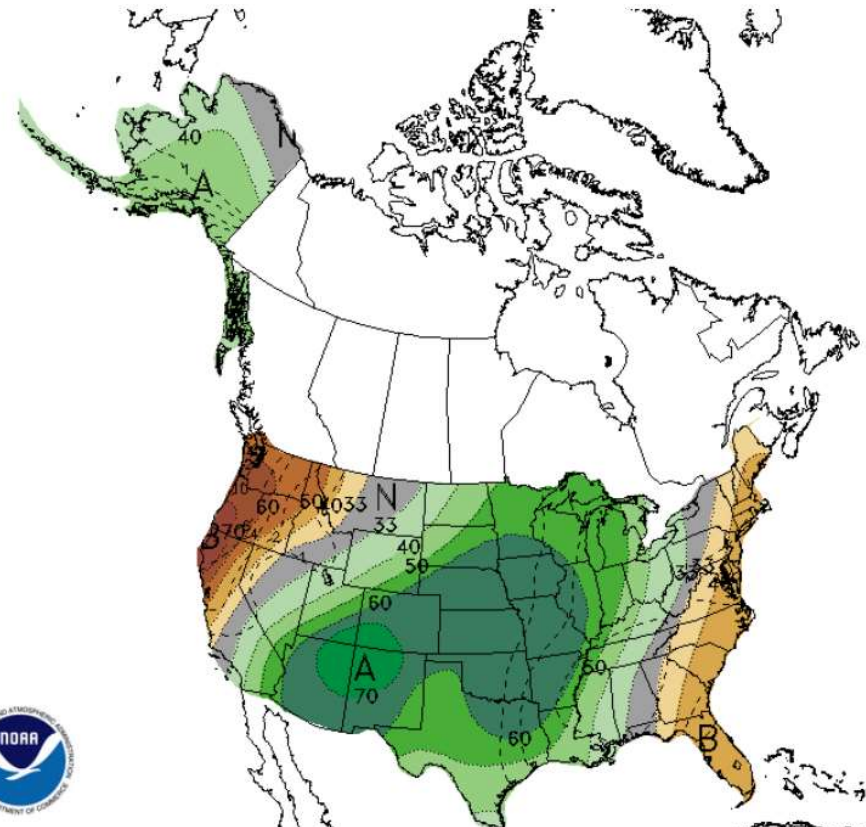
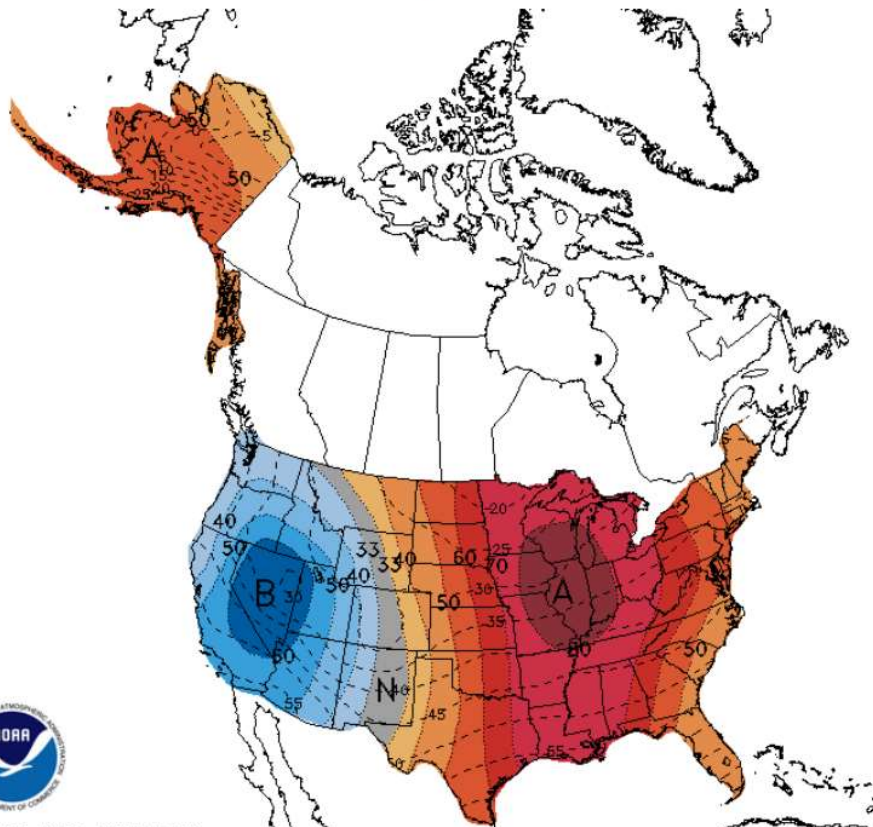
2017 Generation: Peace and Columbia (Firm & Dispatchable Energy)



6 – 10 Day U.S. Weather Outlook

Temperature

Precipitation



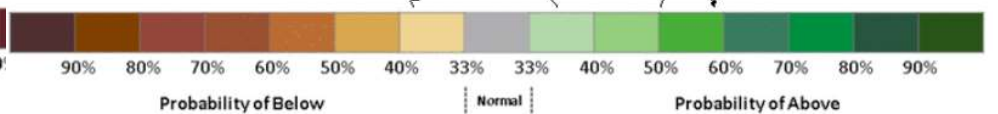
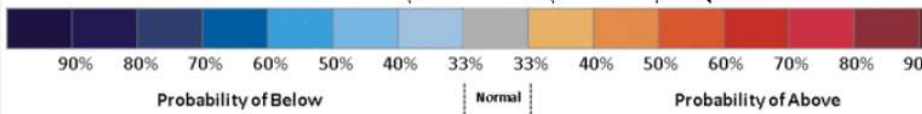
6-10 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 27 NOV 2017
VALID DEC 03 - 07, 2017

DASHED BLACK LINES ARE CLIMATOLOGY
(DEG F) SHADED AREAS ARE FCST
VALUES ABOVE (A) OR BELOW (B) NORMAL
GRAY AREAS ARE NEAR-NORMAL



6-10 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 27 NOV 2017
VALID DEC 03 - 07, 2017

DASHED BLACK LINES ARE CLIMATOLOGY
(TENTHS OF INCHES) SHADED AREAS ARE FCST
VALUES ABOVE (A) OR BELOW (B) NORMAL
GRAY AREAS ARE NEAR-NORMAL



Monthly Operational Highlights: June to Present

June

- Onset of provincial fires. BCH, transmission based assets, on Emergency footing June through August.
- Most snowpack is depleted by the end of June and inflows declined.
- Kootenay Lake reached its peak level of 1751.1 ft, 3.9' below the Flood Control Operating levels.

July

- July runoff remained lower than normal.
- Arrow reached its peak level of 1442.2 ft, 3.8 ft below full (1446') in late July and began drafting after.

August

- Duncan filled to nearly full – 1891.4 ft, within 1 ft from full in early August and drafted to 1888 ft for WUP recreation target by Labour Day.
- Kinbasket did not fill fully (despite initial risk of surcharge and spill) due to low summer inflows. The reservoir reached its peak level of 2467.8 ft, 7.2 ft below full.
- The Columbia system began operating in proportional draft: evolving dry conditions in the Columbia basin.
- Exceptionally high market prices exceeding \$100/MWh for 4 days. Combination of power outages in the BPA system and hot weather.

September

- Continues to be drier than normal resulting in increased system proportional draft across the month.
- Inflows into the Kootenay were not sufficient to maintain the higher fish flow target d/s of BRD from late September through November. Flows were reduced to passing inflows during this low flow period in order conserve water in storage.

Monthly Operational Highlights: June to Present

October

- Weather turned significantly wetter than normal. Most Canadian basins recorded above normal precipitation, Kootenay being wetter than the mainstem Columbia.
- The amount of proportional draft in the system reduced across the month resulting in lower than normal discharge from Arrow.

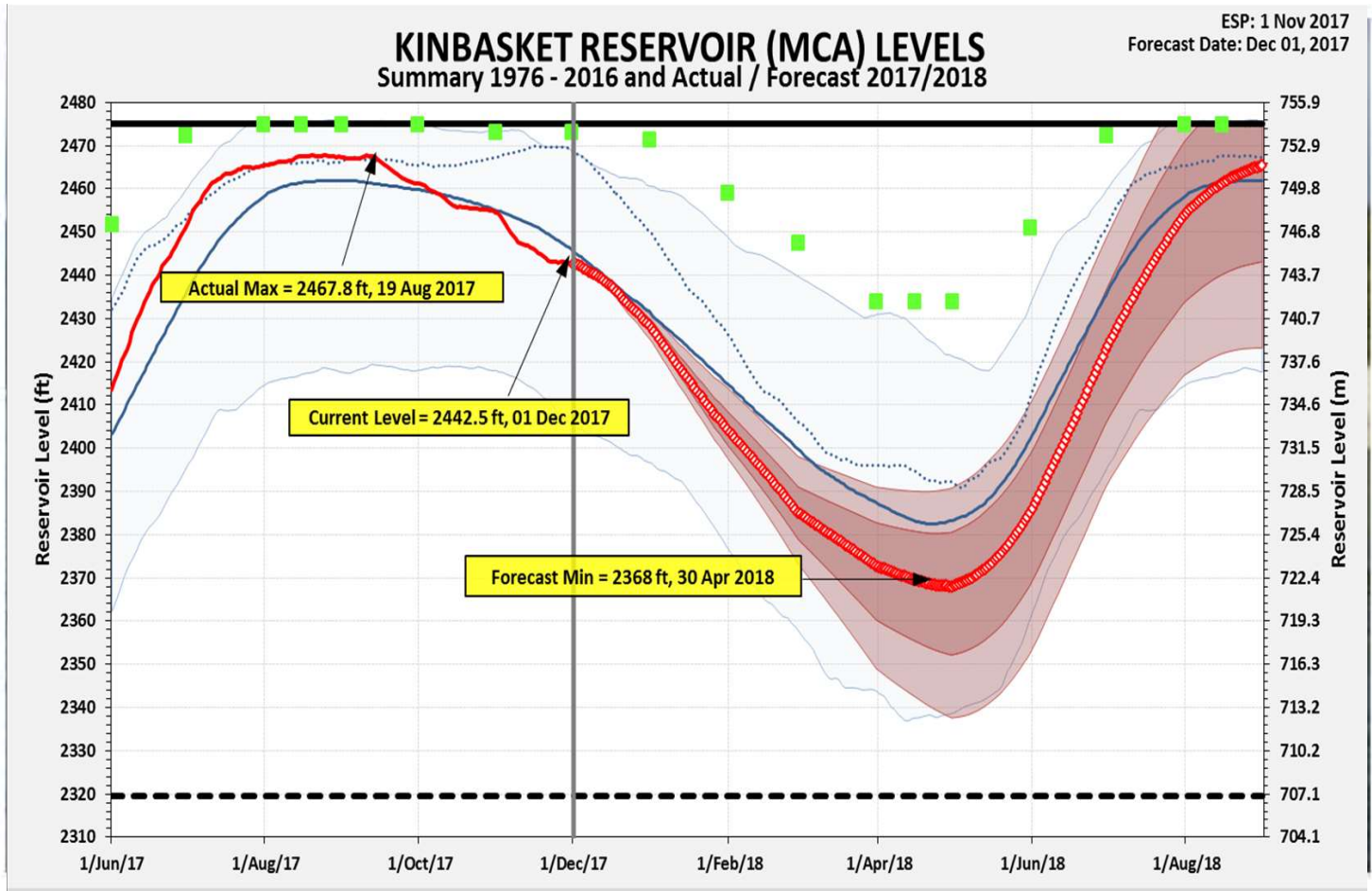
November

- Weather was very volatile starting with an early arctic outbreak in early November followed by stormy and warm weather aka the pineapple express later in the month.
- Mica set new record high generation earlier in the month due to the cold snap followed by near record low at month end due to the mild weather.
- The system continues to come off proportional draft as inflow conditions improve.
- Storms in the Kootenay basin over the weekend increased basin inflows above its historic maximum. Kootenay Lake levels increased by more than 1 foot in the past week. Flows were also increased to above its min flow target as of 26 Nov. Reservoirs generally cycling from full fall storage into winter drafts.

Near Term Forecasts: Columbia System



Kinbasket: Near Term Forecast



The licensed range for Kinbasket Reservoir is between 754.4 metres (2,475 feet) and 706.96 metres (2,319.42 feet). The reservoir can be operated up to two feet above its normal maximum level for public benefit if approved by the Comptroller of Water Rights. Kinbasket Reservoir provides 7 million acre feet (MAF) of Treaty storage and 5 MAF of non-Treaty storage.

This forecast is confidential and is the property of BC Hydro. The forecast is subject to change at any time without notice. Distribution of the forecast to any third party or use by any unintended recipient is prohibited without BC Hydro's written consent. Notes:

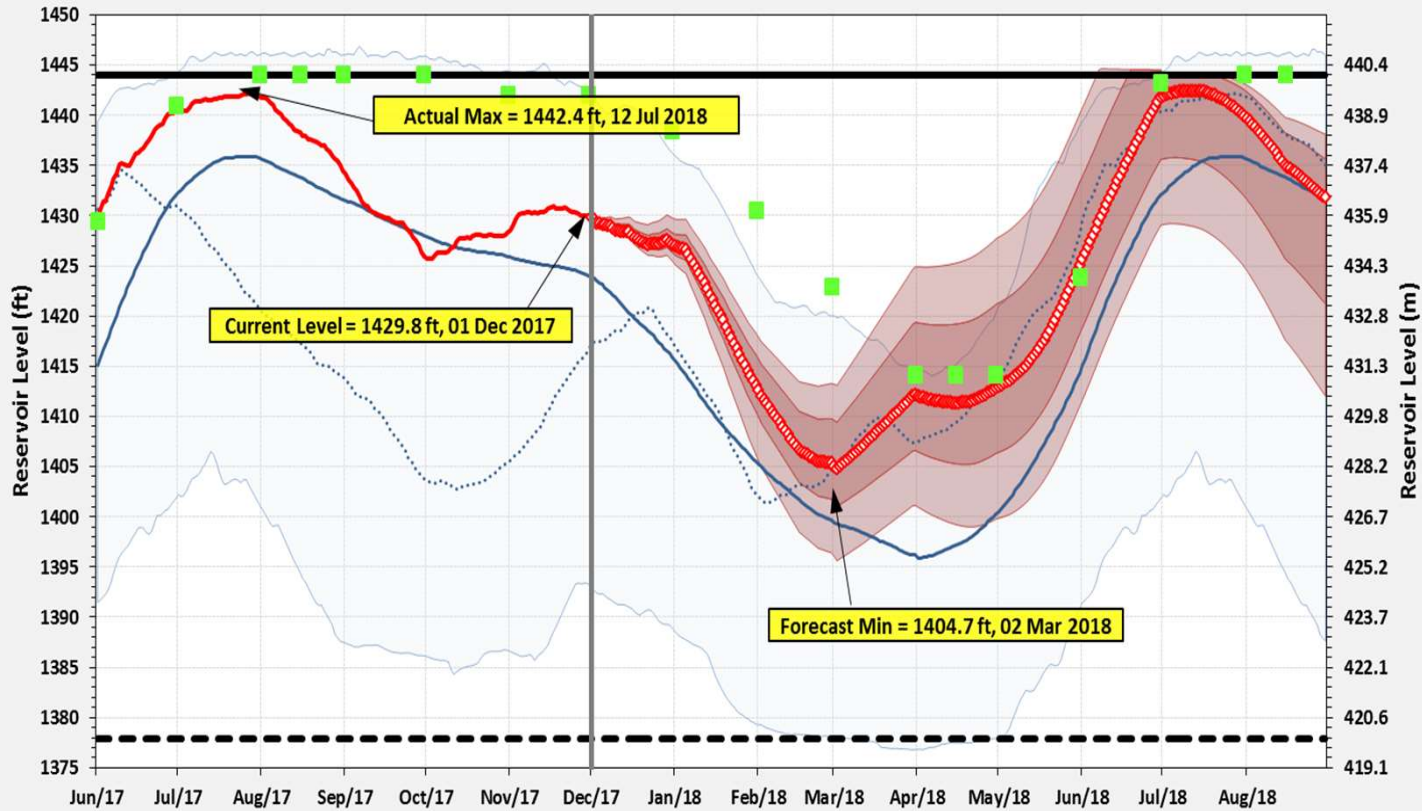
- Min-Max Hist Level Range
- Max Normal Level
- Mean Level
- Expected Plan Level
- 25%-75%ile Plan Level Range
- Min Normal Level
- Prev Yr Level
- Current Day
- 10%-90%ile Plan Level Range
- Flood Control Level
- Actual Level



Arrow: Near Term Forecast

ARROW LAKES RESERVOIR (ARD) LEVELS Summary 1968 - 2016 and Actual / Forecast 2017/2018

ESP: 1 Nov 2017
Forecast Date: Dec 01, 2017



The normal licensed range for Arrow Lakes Reservoir is between 440.1 metres (1,444 feet) and 419.9 metres (1,377.9 feet). The reservoir can be operated up to two feet above its normal maximum level (to 440.7 metres or 1,446 feet) if approved by the Comptroller of Water Rights. Arrow Lakes Reservoir provides 7.1 MAF of Treaty storage.

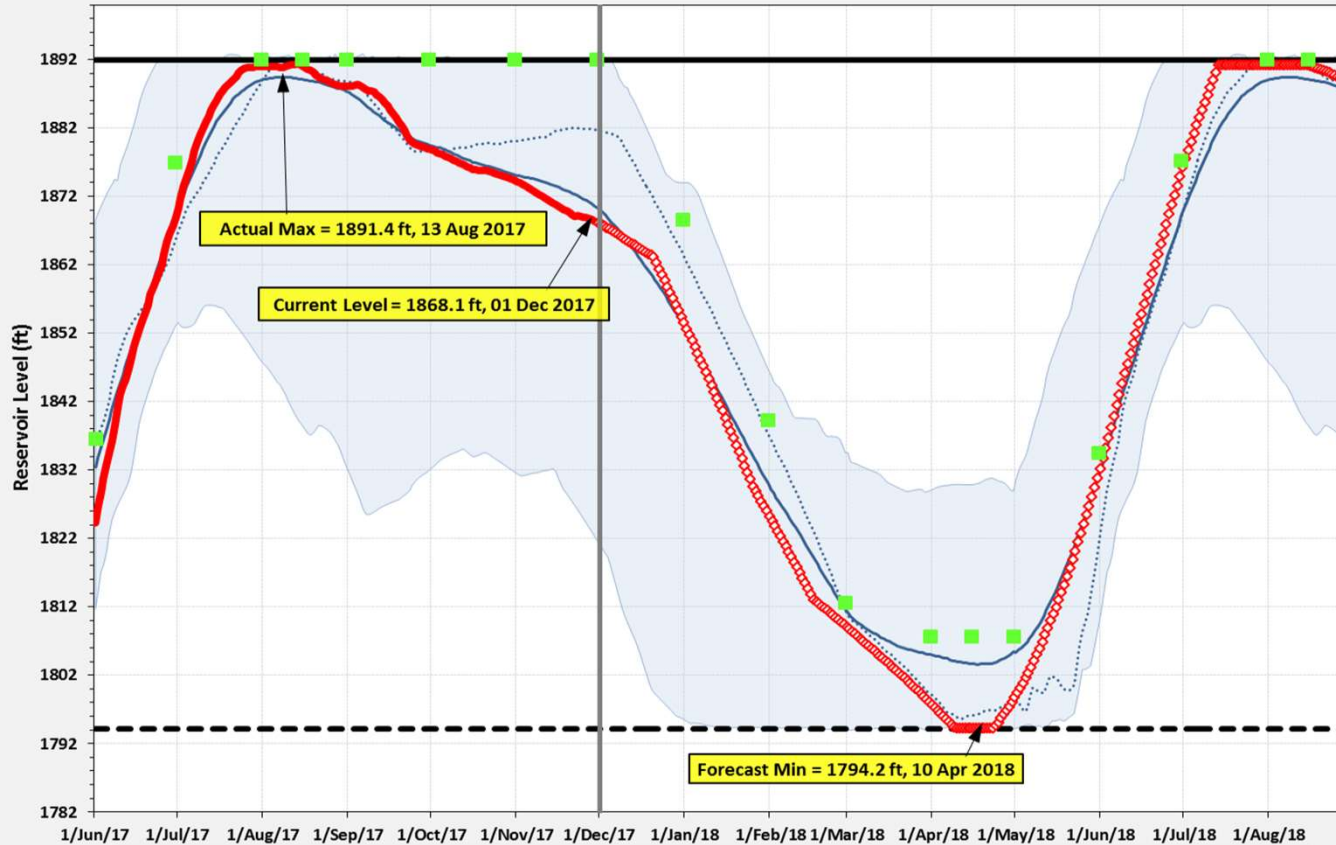
This forecast is confidential and is the property of BC Hydro. The forecast is subject to change at any time without notice. Distribution of the forecast to any third party or use by any unintended recipient is prohibited without BC Hydro's written consent. Notes:

- Min-Max Hist Level Range
- Max Normal Level
- Mean Level
- Expected Plan Level
- 25%-75%ile Plan Level Range
- 10%-90%ile Plan Level Range
- Prev Yr Level
- Current Day
- Flood Control Level
- Actual Level

Duncan: Near Term Forecast

DUNCAN RESERVOIR (DCN) LEVELS & FLOWS
Summary 1967 - 2016 and Actual / Forecast 2017/2018

ESP: 1 Nov 2017
Forecast Date: Dec 01, 2017

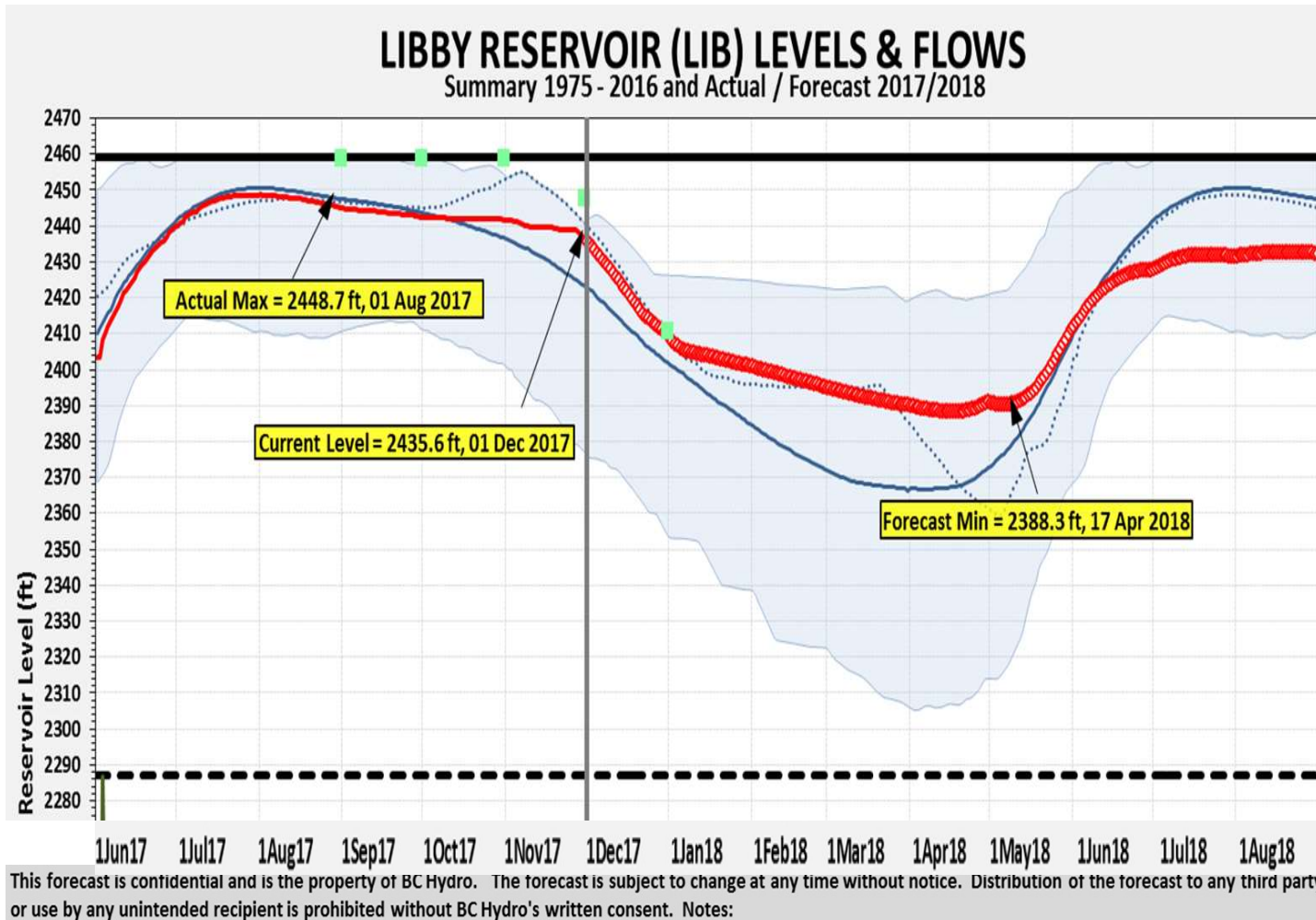


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The normal operating range for Duncan Reservoir is between 576.7 metres (1,892 feet) and 546.9 metres (1,794.2 feet). The reservoir can be operated up to two feet above its normal maximum level (577.3 metres or 1,894 feet) for public benefit if approved by the Comptroller of Water Rights. Duncan Reservoir provides 1.4 MAF of Treaty storage.

- Min-Max Hist Level Range
- Max Normal Level
- Mean Level
- Expected Plan Level
- 25%-75%ile Plan Level Range
- Min Normal Level
- Prev Yr Level
- 10%-90%ile Plan Level Range
- Flood Control Level
- Current Day
- Actual Level

Libby: Near Term Forecast

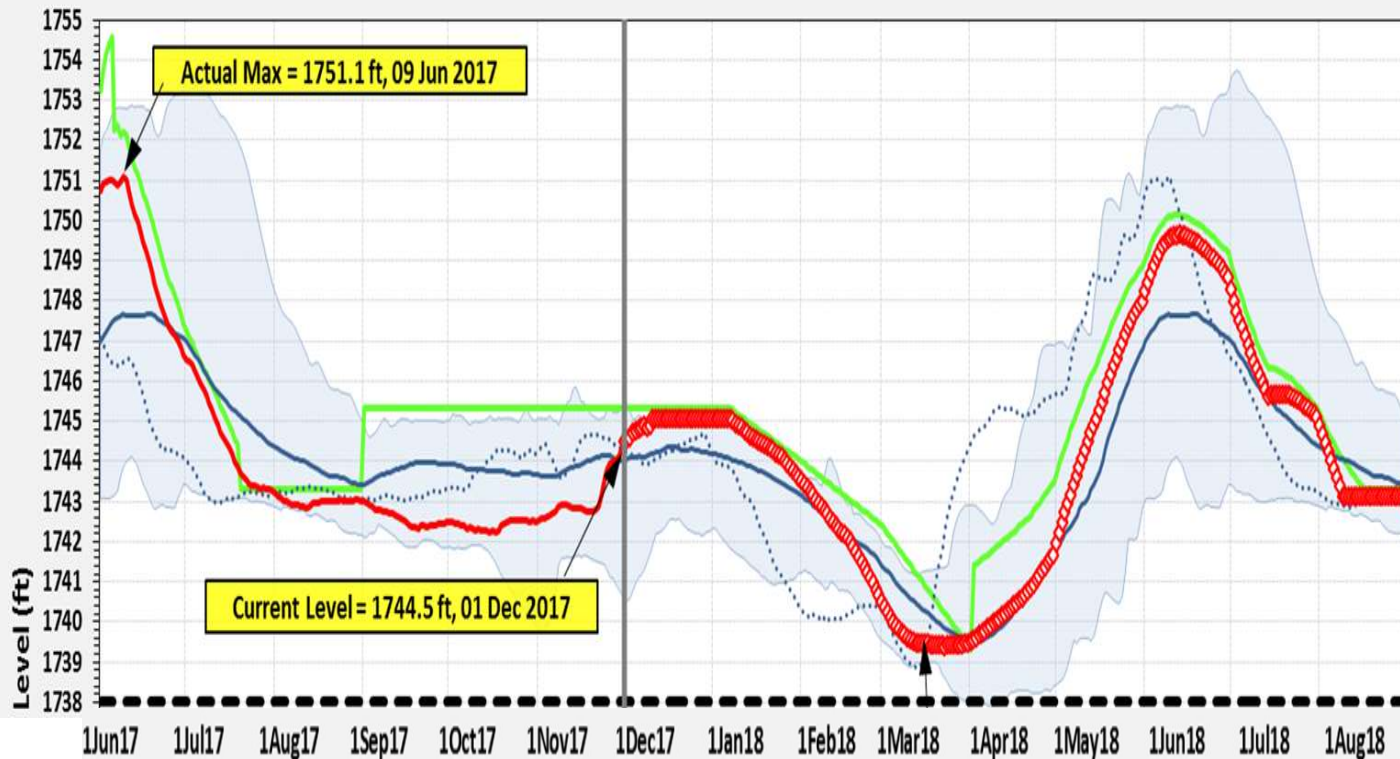


- | | | |
|--------------------------|-----------------------------|-----------------------------|
| Min-Max Hist Level Range | 25%-75%ile Plan Level Range | 10%-90%ile Plan Level Range |
| Max Normal Level | Min Normal Level | Flood Control Level |
| Mean Level | Prev Yr Level | Actual Level |
| Expected Plan Level | Current Day | |

Kootenay: Near Term Forecast

KOOTENAY LAKE RESERVOIR (KLK) LEVELS & FLOWS

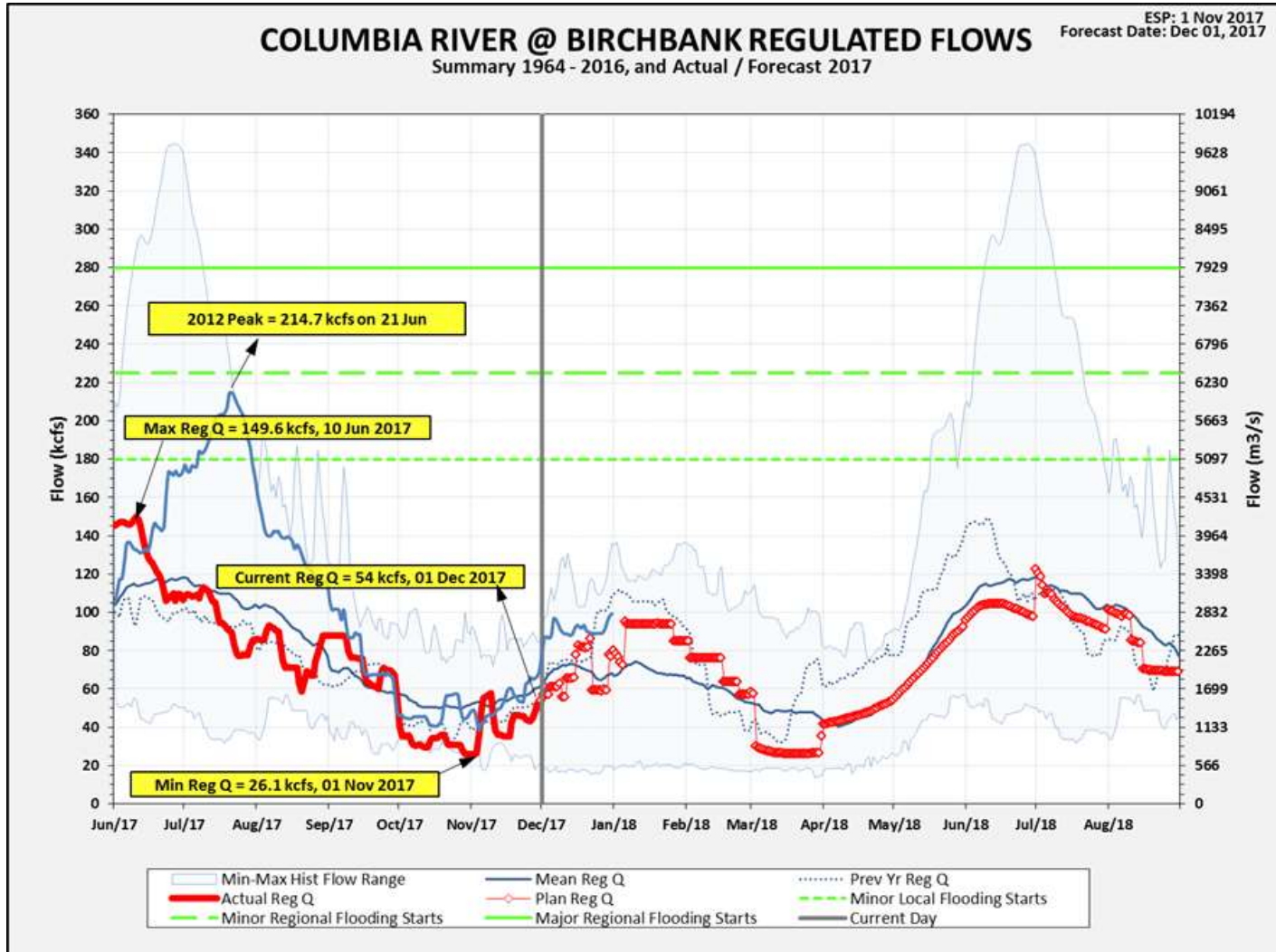
Summary 1984 - 2016 and Actual / Forecast 2017/2018



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- | | | |
|--------------------------|-----------------------------|-----------------------------|
| Min-Max Hist Level Range | 25%-75%ile Plan Level Range | 10%-90%ile Plan Level Range |
| Max Normal Level | Min Normal Level | Flood Control Level |
| Mean Level | Prev Yr Level | Actual Level |
| Expected Plan Level | Current Day | |

Columbia River Birchbank: Forecast



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Additional Information

Want to stay informed of BC Hydro operations?

REGIONAL OPERATIONS UPDATE MEETINGS

BC Hydro hosts its annual Operations Update meetings in the following Columbia basin communities: Castlegar, Cranbrook, Creston, Golden, Meadow Creek, Nakusp, Revelstoke Valemount and Wardner.

These meetings are held to:

- Listen to, and learn from, local residents, stakeholders, First Nations and community representatives who have an interest in the operation of the Columbia River Treaty facilities and BC Hydro facilities in the East Kootenay and Thompson/Okanagan/Columbia regions.
- Provide information on the operations of Columbia River Treaty facilities in Canada and other facilities that are operated in a coordinated manner on the Columbia system.
- Provide an update on BC Hydro activities.

OPERATIONS UPDATE CONFERENCE CALLS

BC Hydro periodically hosts conference calls to provide updates on our Columbia and Kootenay system operations. If you would like to receive email notifications regarding these meetings and conference calls, please contact Dayle Hopp at dayle.hopp@bchydro.com.

BC HYDRO'S TOLL-FREE RESERVOIR INFORMATION LINE: 1 877 924 2444

BC Hydro's toll-free reservoir information line provides up-to-date reservoir water level and river flow information which is available at your convenience. The recording is updated every Monday, Wednesday and Friday and provides:

- **Current Water Levels:** Arrow Lakes Reservoir, Duncan Dam Reservoir, Kinbasket Reservoir, Koocanusa Reservoir, Kootenay Lake, Revelstoke Reservoir, Sugar Lake Reservoir and Whatshan Lake Reservoir.
- **Current River Flows:** Columbia River at Birchbank, Duncan River at the Lardeau Confluence, Shuswap River and the flow downstream from Wilsey Dam at Shuswap Falls.