

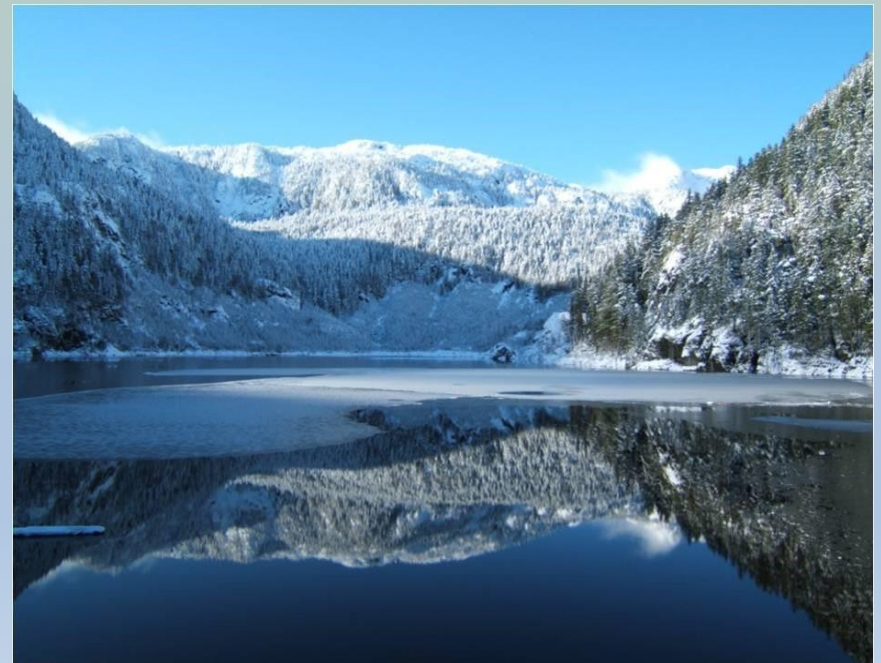
# Arrowsmith Water Service Operations Update November 17, 2021





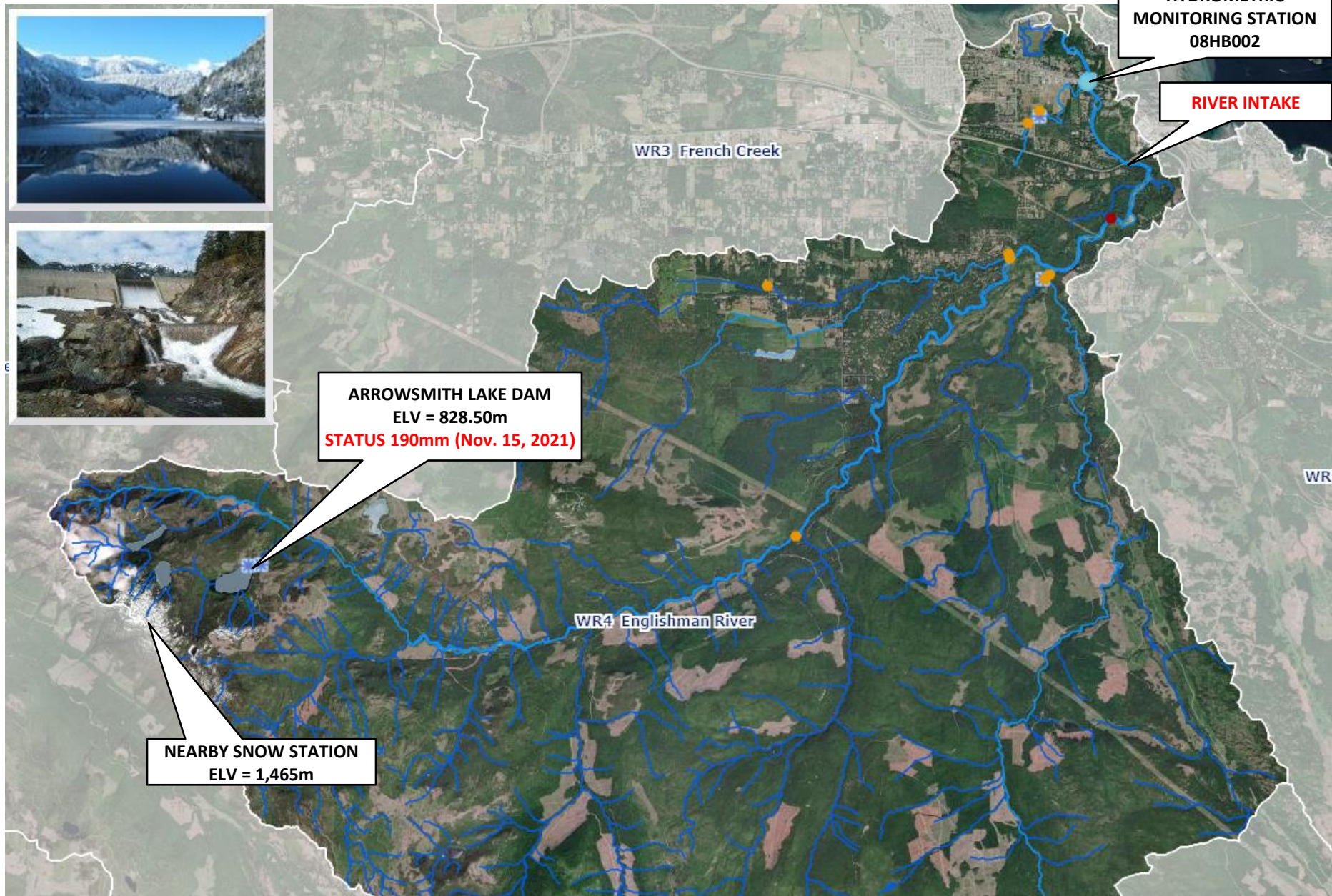
# Watershed Updates

*“snow pillow, dam, river and intake”*





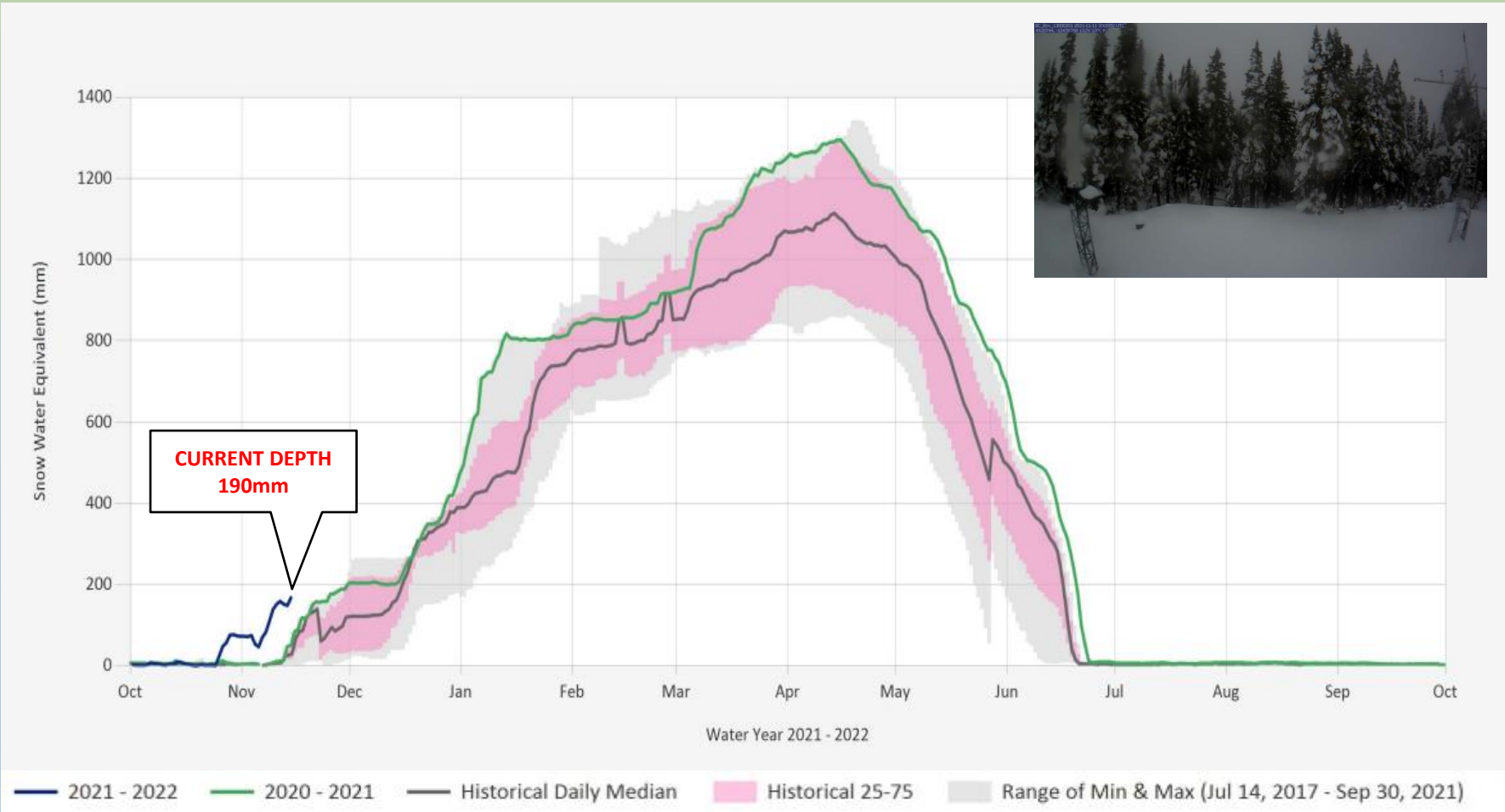
# Location of Snow Pillow Gauge, Dam and River Gauge





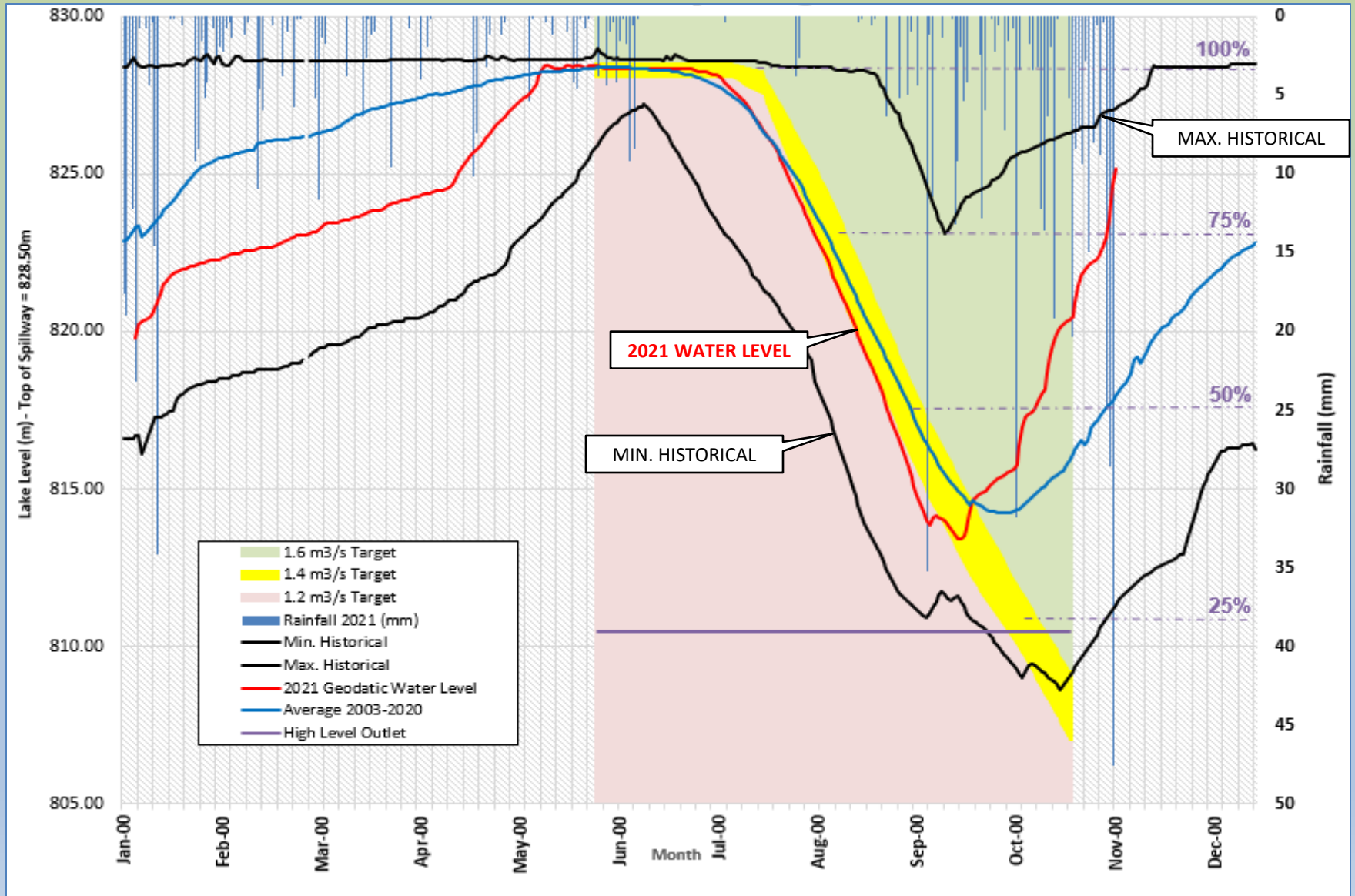
# Snow Pillow Gauge 3B26P Historical Records

Source Data: SW.Daily@3B26P Location: Mount Arrowsmith, Latitude: 49.207376, Longitude: -124.567776, Elevation: : 1465 m

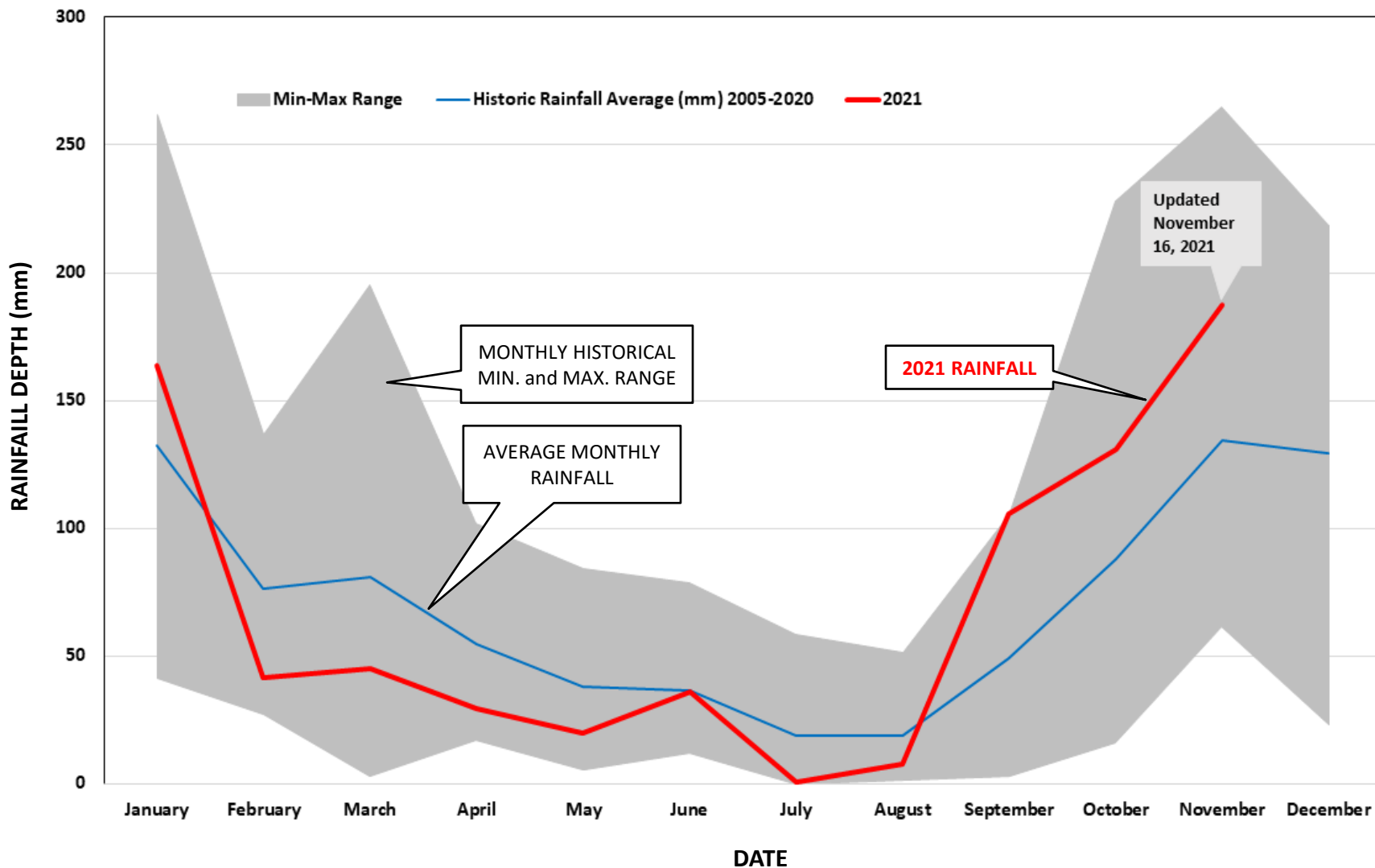




# 2021 Arrowsmith Dam Lake Levels Provisional Operating Rule Curve

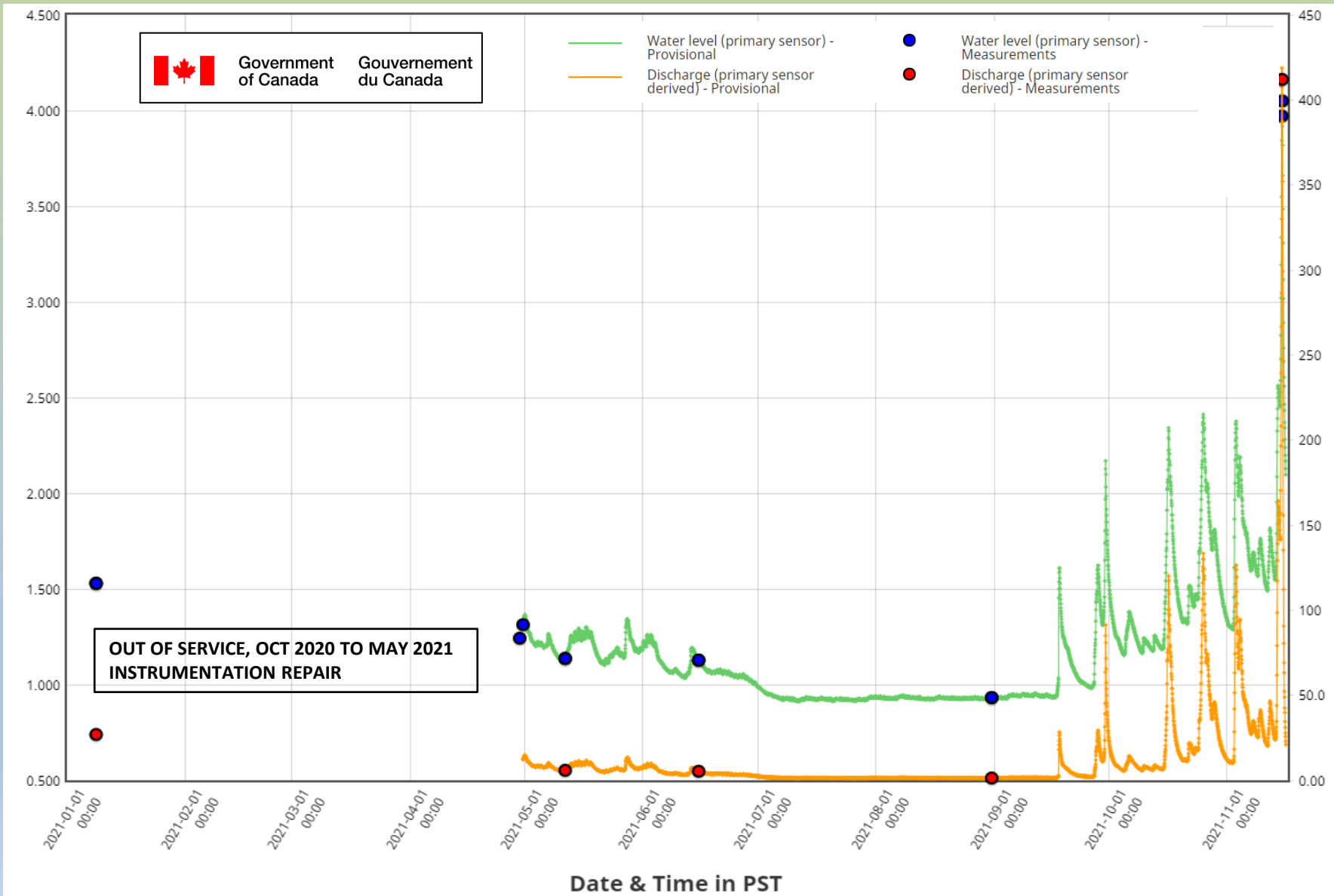


# Public Works Yard Rain Gauge Rainfall Historical Records



# Englishman River Hydrometric Monitoring Station 08HB002

## 2021 Water Level and Discharge Records





# 2021 Projects

- Hydrometric Monitoring Station
- Dam Safety Review
- Joint Venture Agreement
- Monthly Reports
- Routine Generator Service
- Battery Replacement, SCADA System



# Hydrometric Monitoring Station Repairs

- Budget \$15,000
- Status: Completed

On behalf of the Arrowsmith Water Service, the City cost shares the operating and maintenance of the Englishman River hydrometric monitoring station. The management of the dam and river flows depends on this station and is considered as a critical device to upkeep and maintain.

The instrument is located near Highway 19a and Englishman River (near orange bridge). Recent vandalism had resulted in approximately \$30,000 in damage to the station equipment and vault. The work is being coordinated by the Ministry of Environment and will involve relocation of the station to an area where it will be less susceptible to vandalism.

## Outcomes:

Restore metering and analytical capacity to help manage water supply alongside the maintenance and preservation of the river environment.



# Dam Safety Review

- 2021 budget \$65,000
- Status: carry forward to 2022, increase budget to \$100,000

Provincial Dam Safety Regulation requires owners to conduct a comprehensive dam safety review every ten years. The review will focus on the design and performance of the dam as it relates to present conditions:

- Structural stability in meeting current regulations.
- Capacity of waterways, valves, gate, overflow system to respond to extreme climate change conditions.
- Safety of the dam and what actions are required to make the dam safe including review of downstream inundated areas.

## Outcomes:

Outline the renewal and improvements required in protecting and securing the water supply storage for the City of Parksville, Regional District of Nanaimo, and the Town of Qualicum Beach.

Provide direction on upgrades as necessary.





# 2022 Projects

*“Instrumentation and security upgrade”*





# Camera Security, Solar Power Charging Station and Piezometer Readout Unit Renewal

- Budget 2022 \$40,000
- Status: pending approval

## Camera Security System

The existing system was installed in ~1995 using radio transmitter technology. Intermittent signals and delays were noticed as the image bandwidth is too large to be transmitting over radio signals. It is becoming less reliable. Telemetry satellite technology such as Tesla Starlink is recommended for off-grid applications.

## Power Supply Upgrade, Solar Charging Station

The existing power generator is nearing its service life and upgrade will be conducted in phases. The first phase will be installing solar system utilizing the natural resources. This will alleviate and offset the power draw from the propane generator. The generator is to be renewed in 2026.

## Piezometer Readout Unit

Piezometers installed at the dam are to monitor the water level seeping through the dam. Upkeep with the regular monitoring is mandatory as per the provincial dam regulation. Monitoring is conducted by inserting the piezometer readout unit into the piezometer pipe. The piezometer readout unit (suitcase travel unit) is at the end of its service life and replacement is required.

## Outcomes:

The above-noted items are required to meet safety and regulatory requirements in maintaining the water supply system.

# Future Projects

- Budget: 2024 \$10,000; 2026 \$30,000
- Status: pending approval

## **Generator Battery Replacement, 2024 \$10,000**

The battery is nearing its service life and replacement is required to support the generator system.

## **Generator Replacement, 2026 \$30,000**

The generator unit is nearing its service life and replacement is required.

## **Potential Dam Safety Upgrades**

Potential upgrades may be required through the completion of the dam safety review.

## **Outcomes:**

The above-noted items are required to meet safety and regulatory requirements in maintaining the water supply system.



# Questions

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