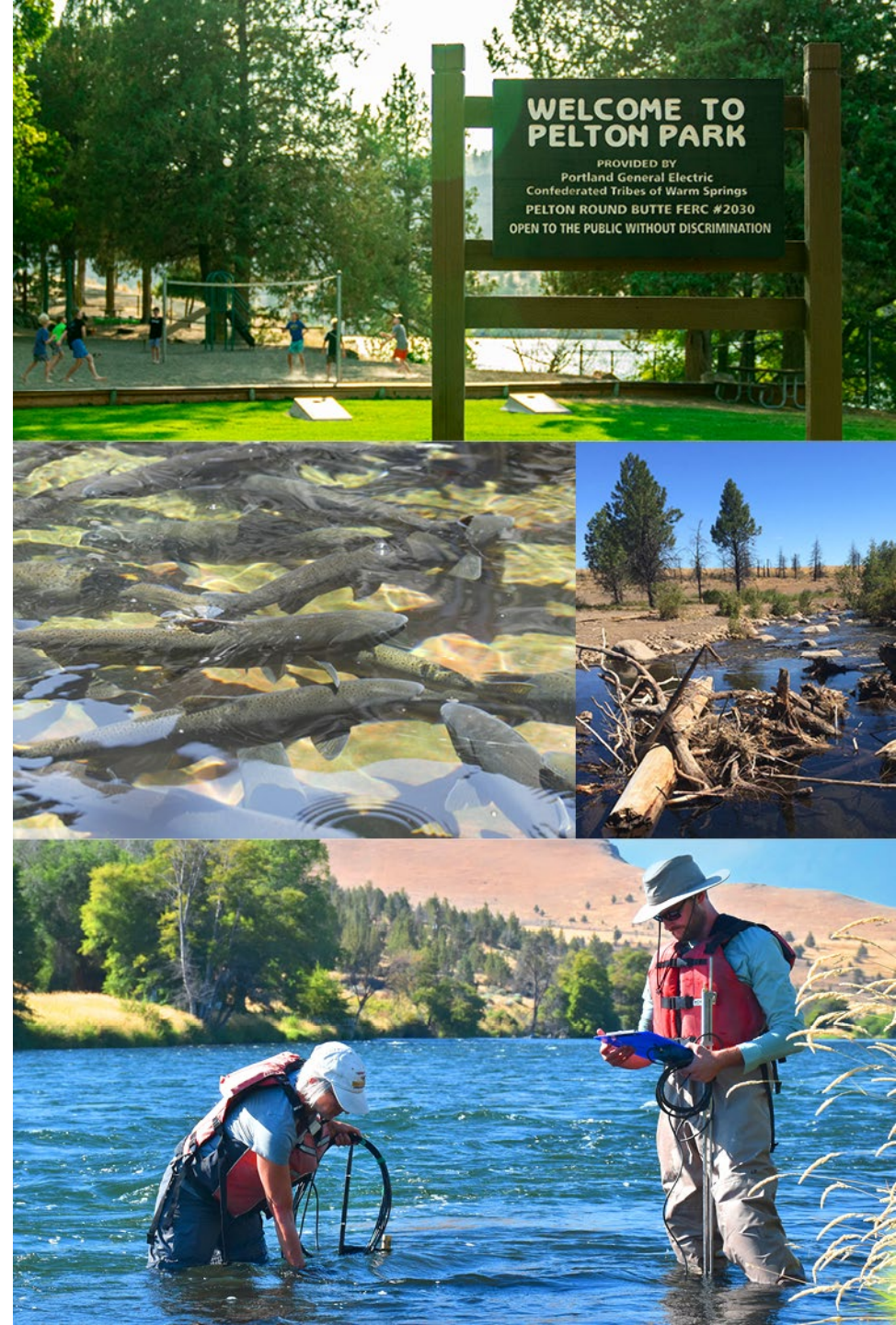


2024 Water Quality at Pelton Round Butte

Lori Campbell
July 2025



Topics

- Water quality management and monitoring
- Temperature management
- Project dissolved oxygen and pH



PRB Water Quality Program

- Compliance
- Monitoring
- Reduce impacts of Project
- Adaptive management
- Benefit fish species –
reservoirs and downstream



Water Quality Sampling

Monthly sampling

- Tributary inflows
- Depth profiles in reservoirs
- Tailraces and lower river

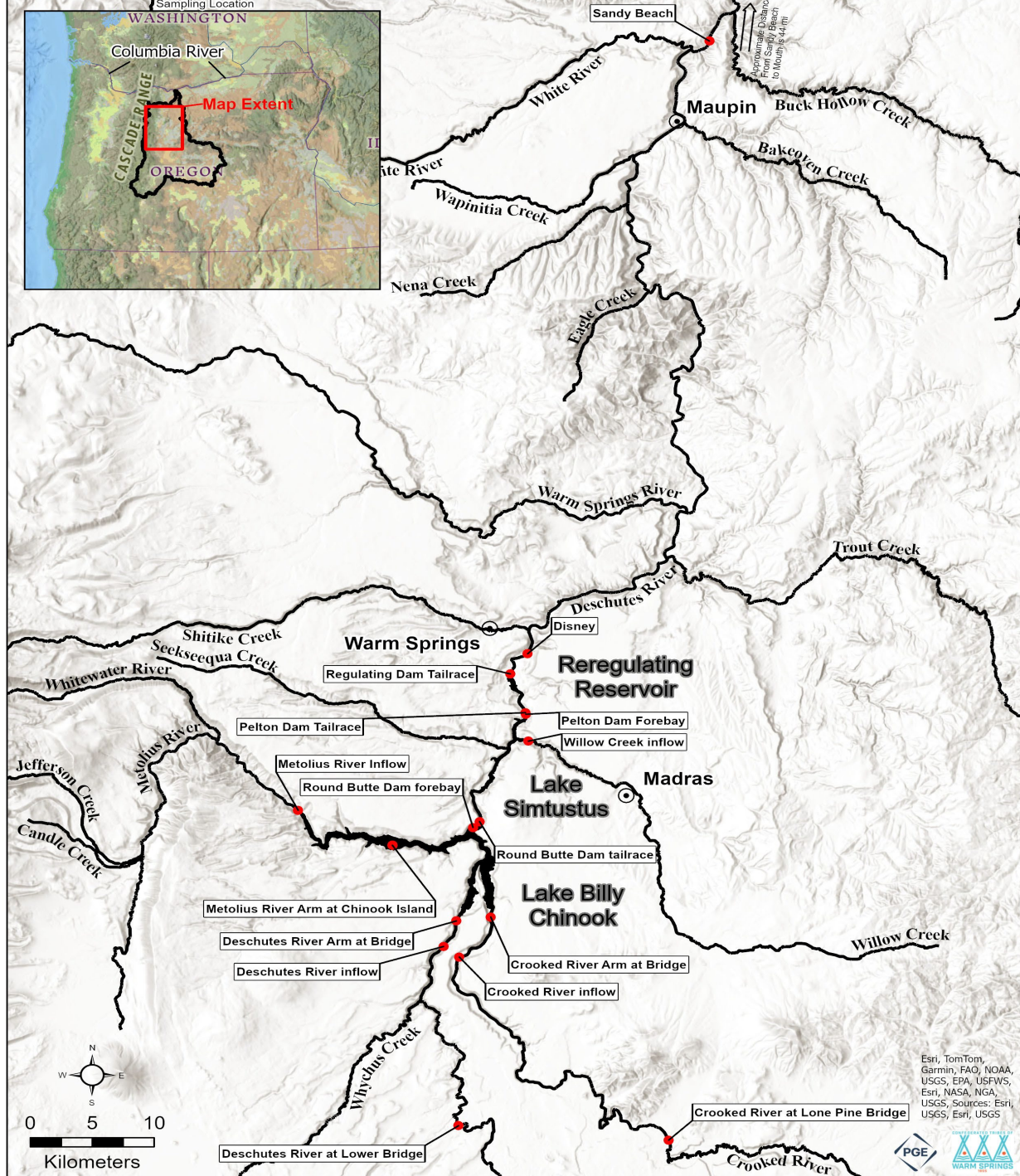
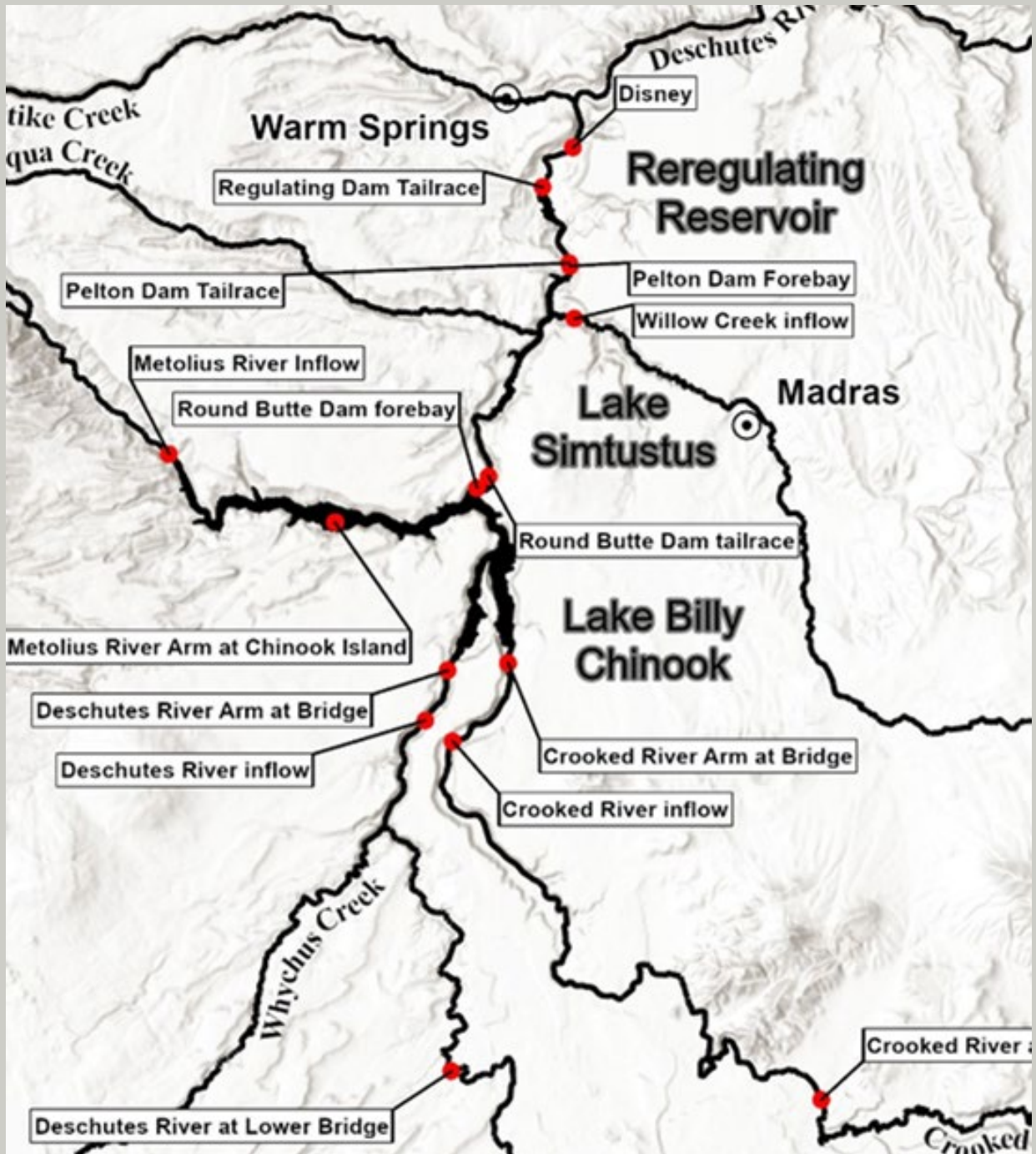
Continuous stations

- Round Butte and Reregulating tailraces

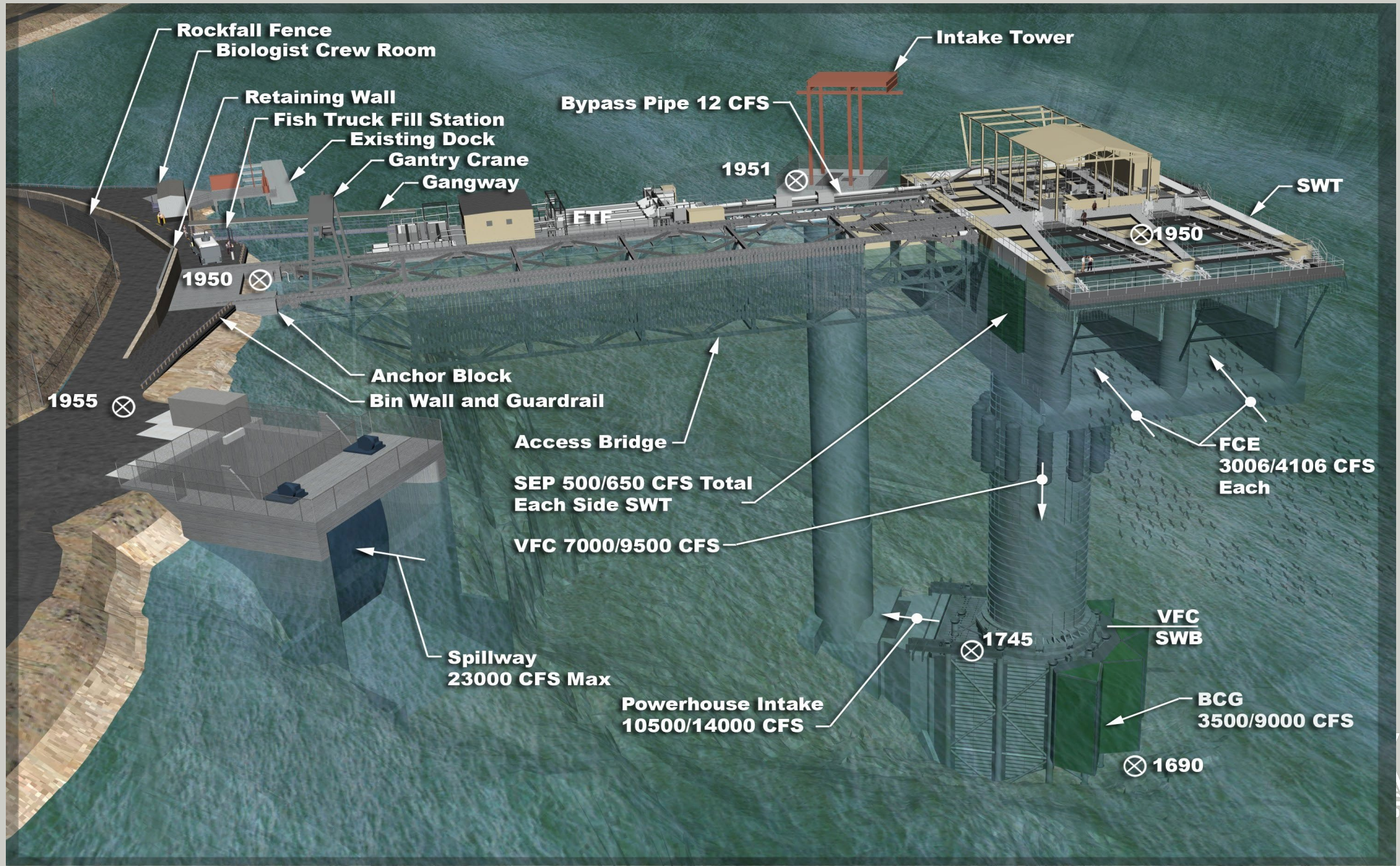
Data loggers

- Tributaries
- Reservoir profiles
- Lower river



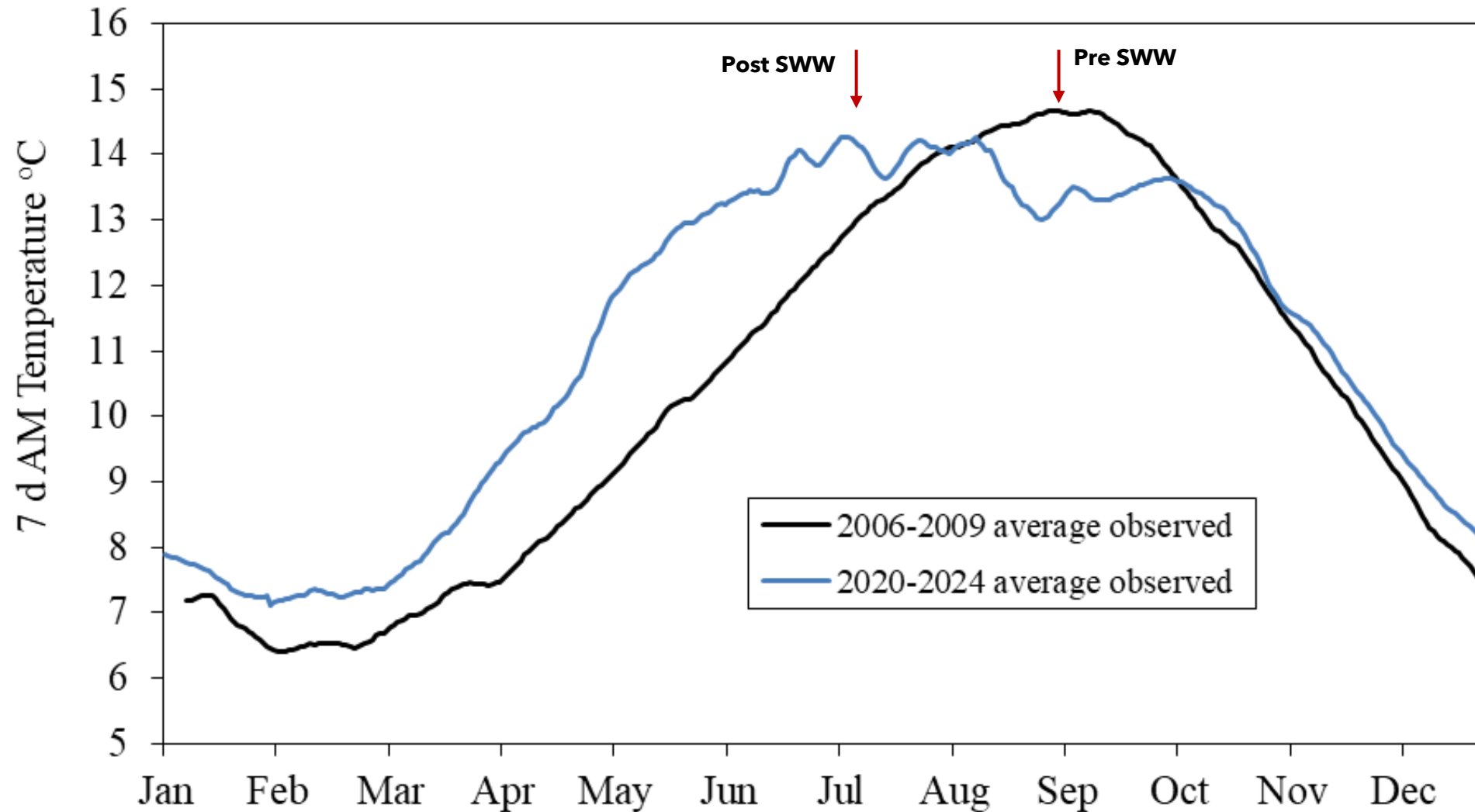


Selective water withdrawal



Temperature management program: seasonal temperatures

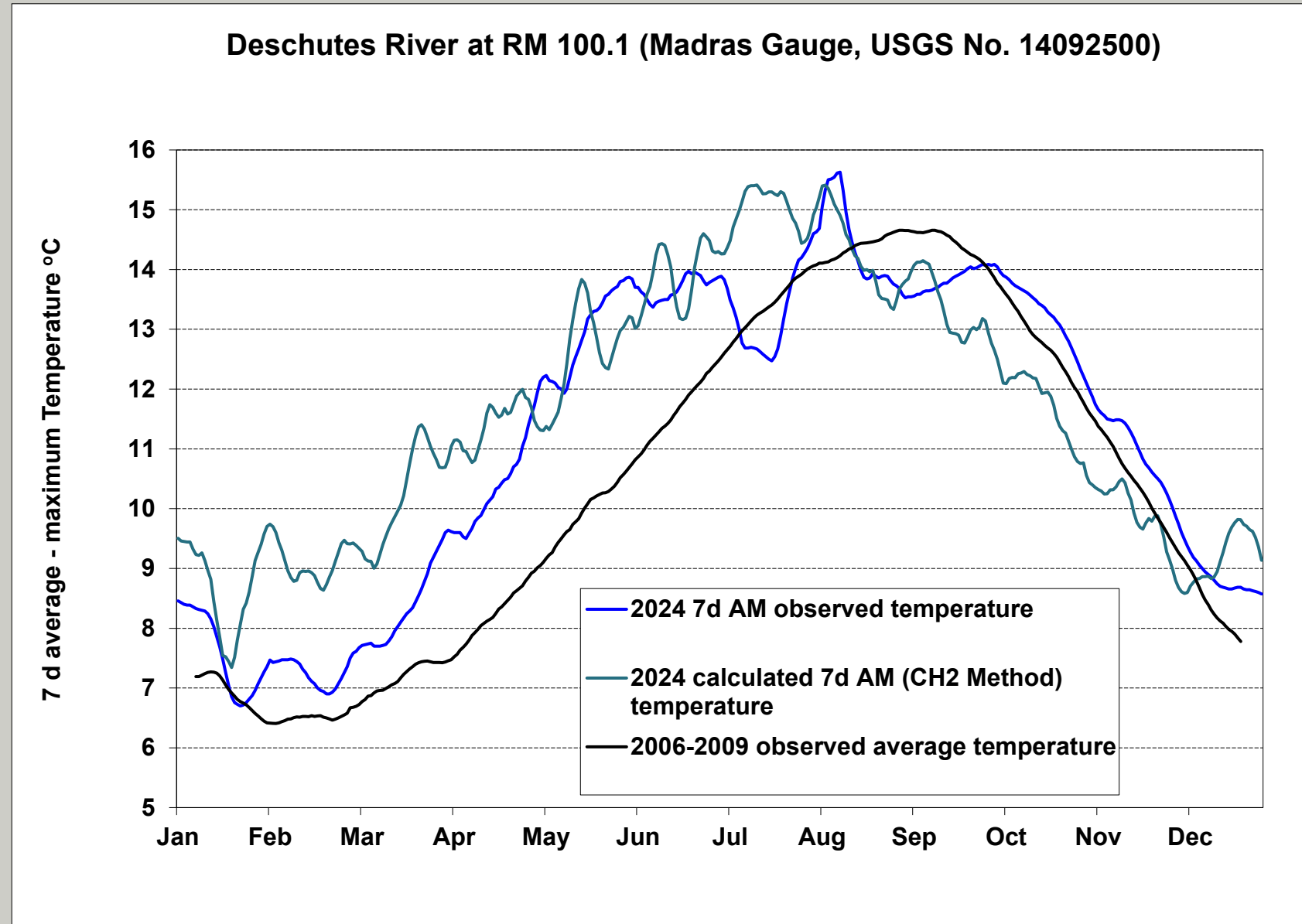
Deschutes River at RM 100.1 (Madras Gauge, USGS No. 14092500)



Temperature management program:

Without Project Temperature

- Predicted temperature at the discharge point if the dams were not in place
- Includes temperatures of combined tributaries, air temperatures
- Temperatures at Madras gauge compared to calculated temperatures



Tributaries

Solar radiation, or lack of radiation, on tributaries; primarily drives calculated (WPT) temperature during spring.

Reservoirs

Store heat, or lack of heat, in the water.



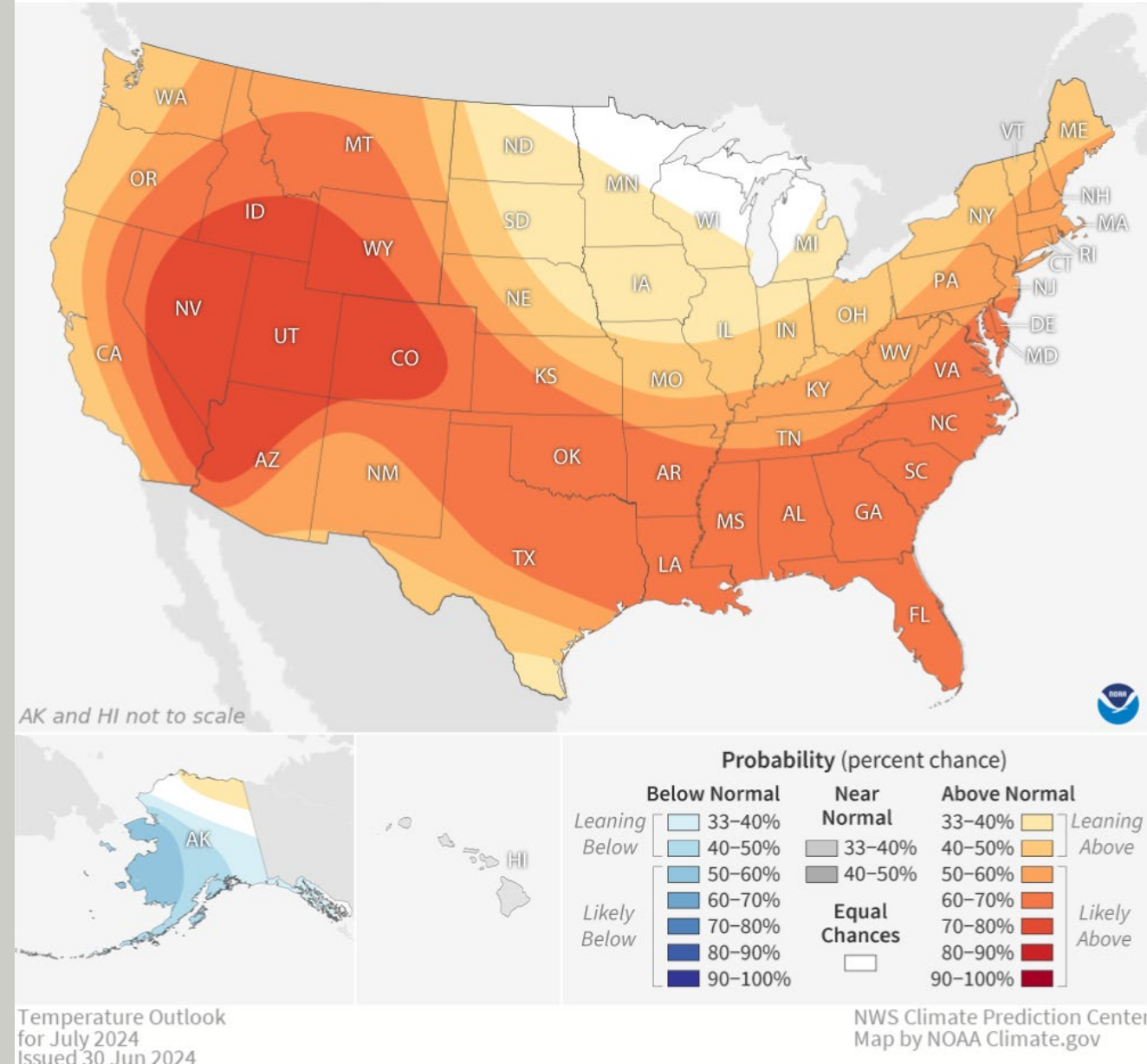
Recent weather patterns

Recent weather has been warmer.

Tributary flows have been variable, and often low.

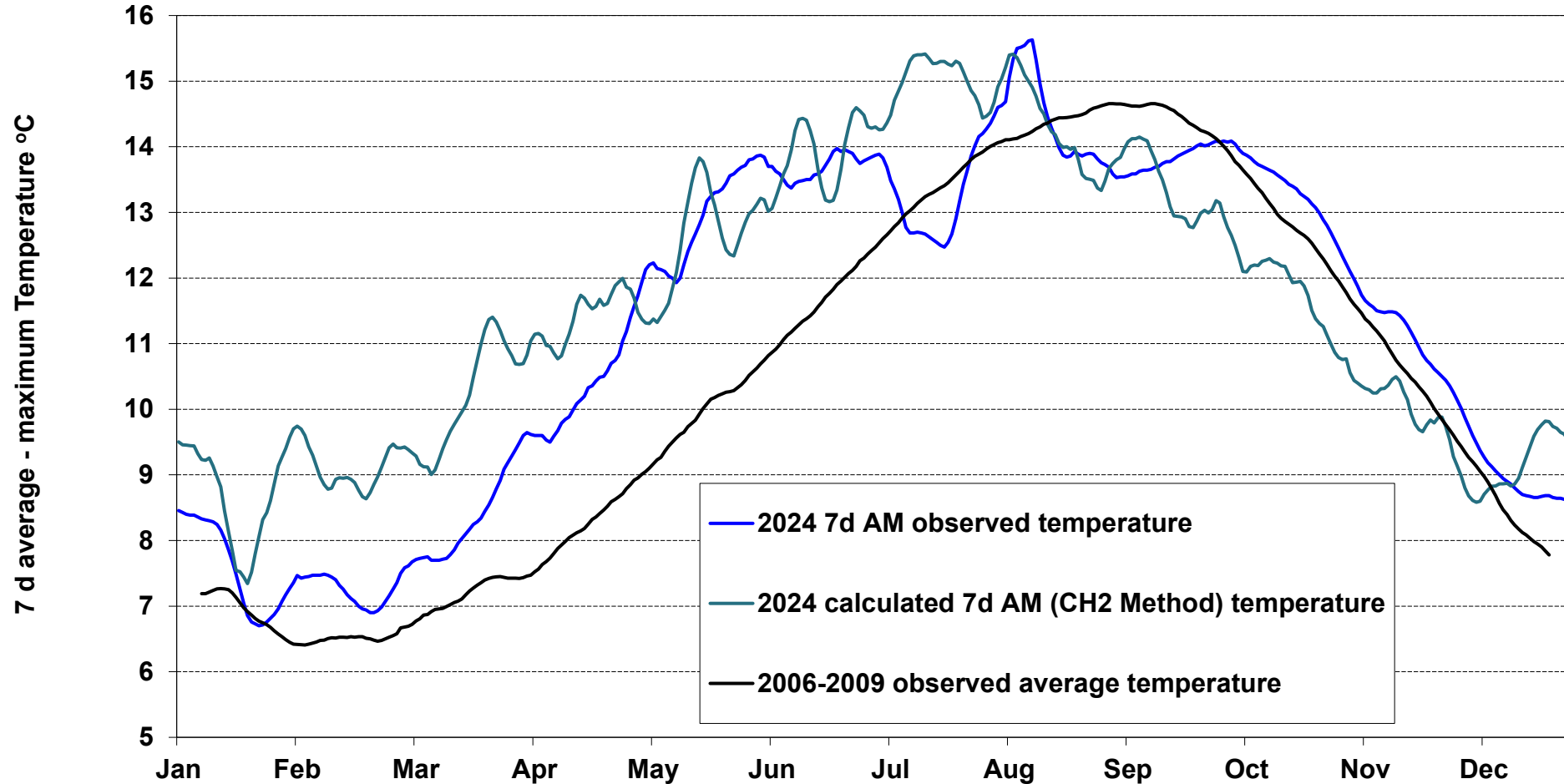


Temperature outlook for July 2024

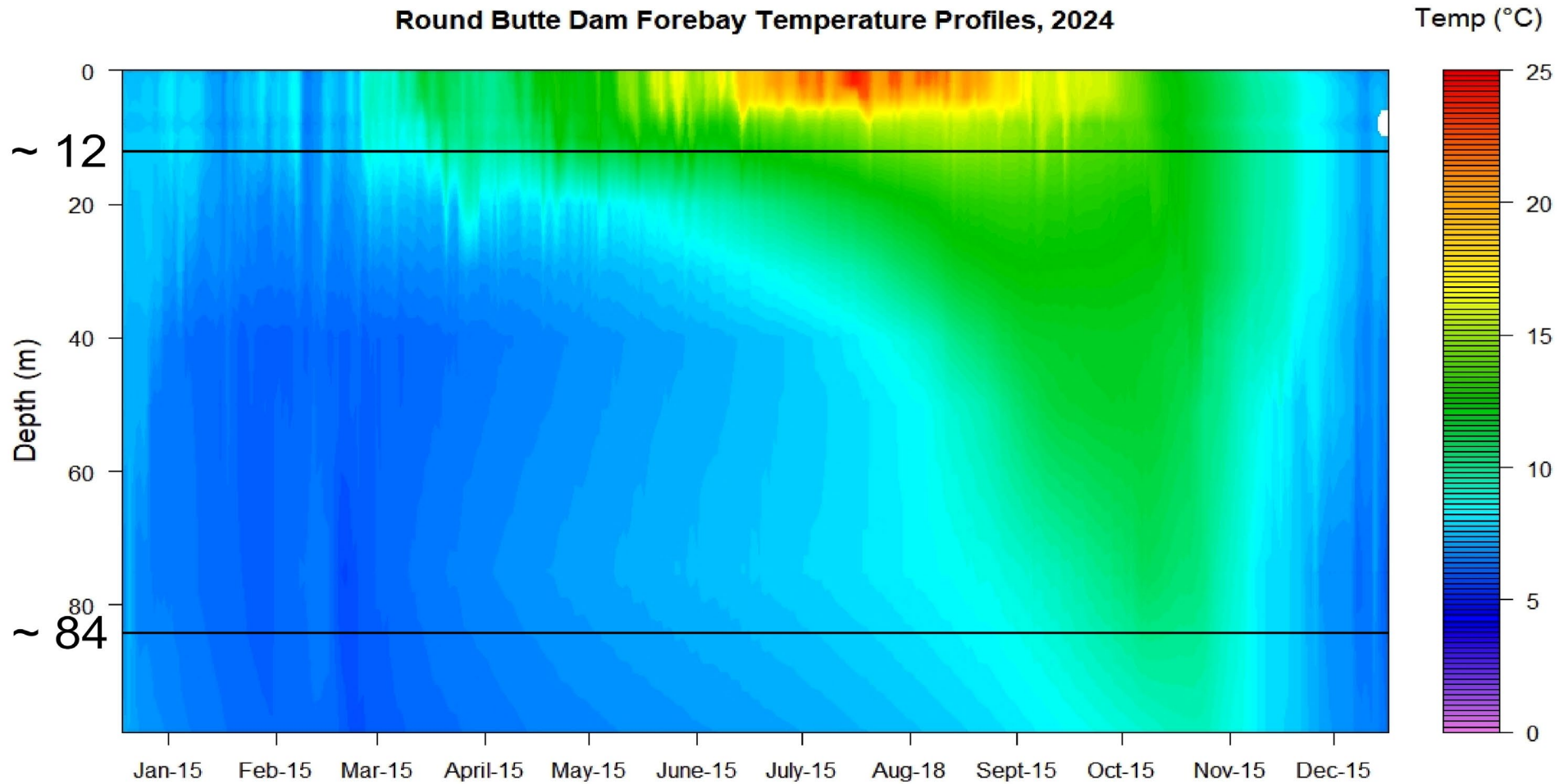


2024 Discharge Temperatures

Deschutes River at RM 100.1 (Madras Gauge, USGS No. 14092500)



Round Butte Dam Forebay Temperature Profiles, 2024

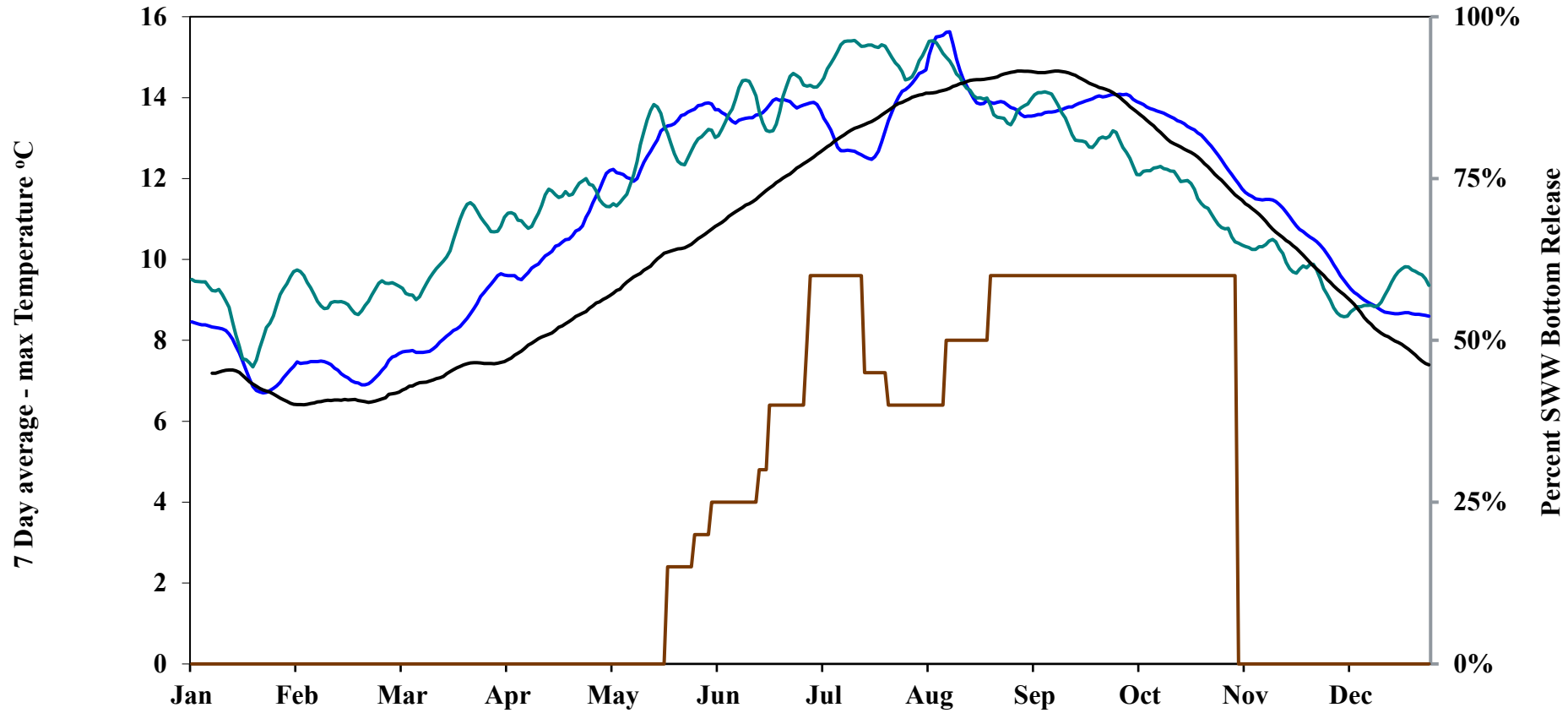


2024 Round Butte Dam forebay temperatures

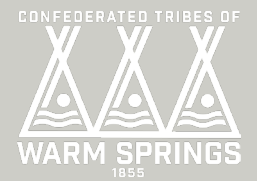


2024 Discharge Temperatures

Deschutes River at RM 100.1 (Madras Gauge, USGS No. 14092500)



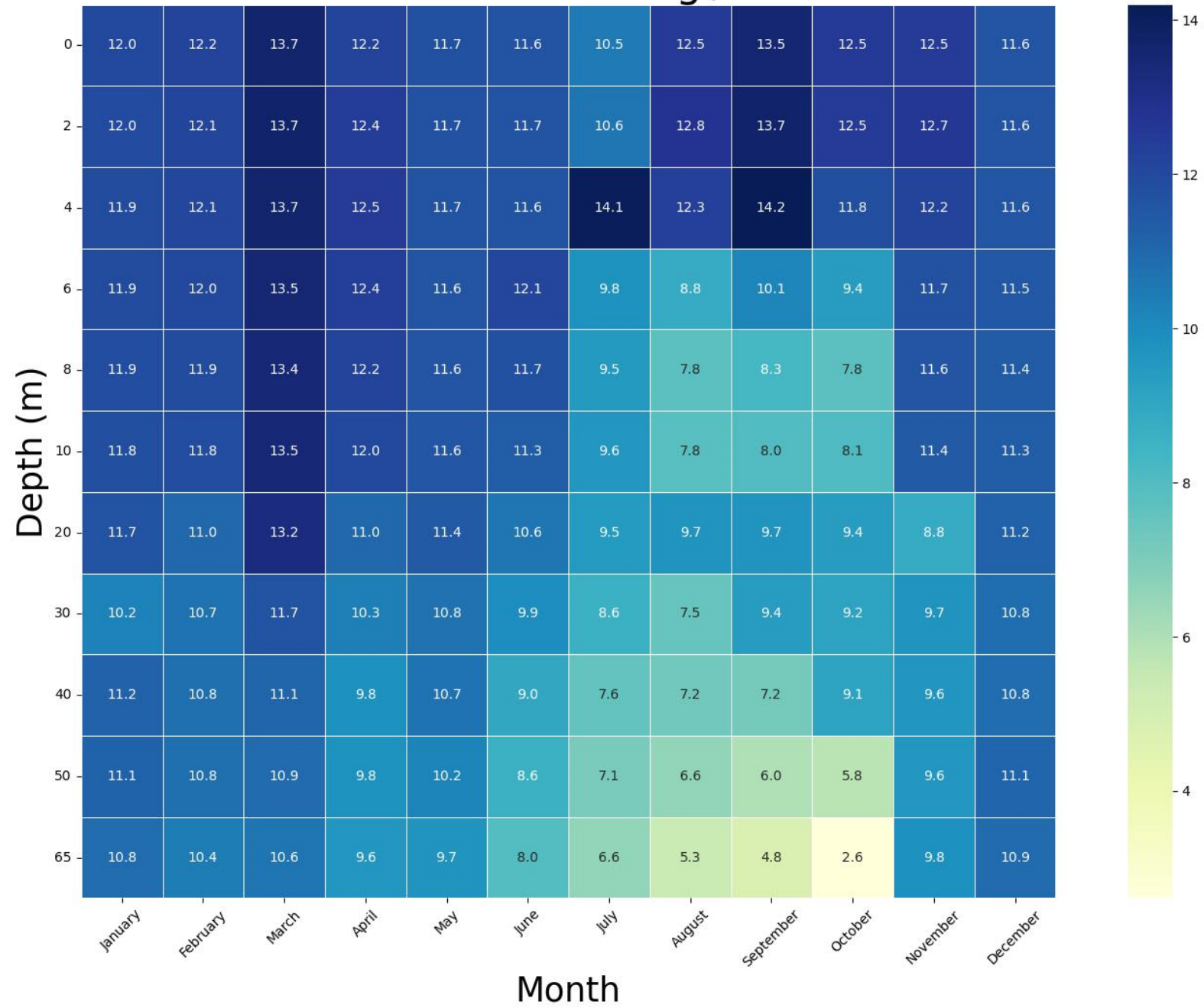
- Observed Temperature 2024
- Calculated WP Temperature
- Pre-SWW 2006-2009
- Percent SWW Bottom Release



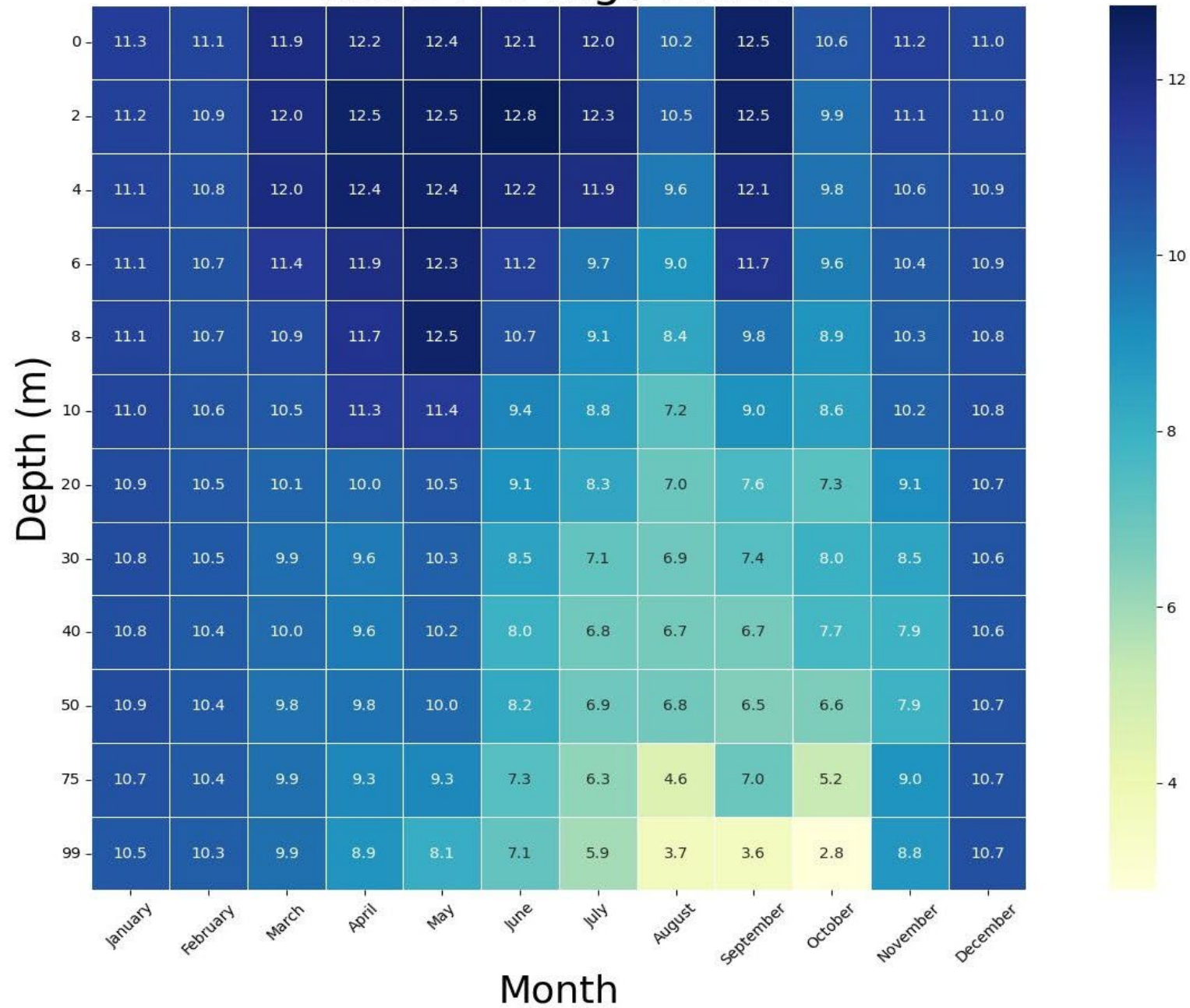
2024 Dissolved Oxygen and pH



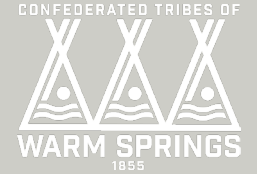
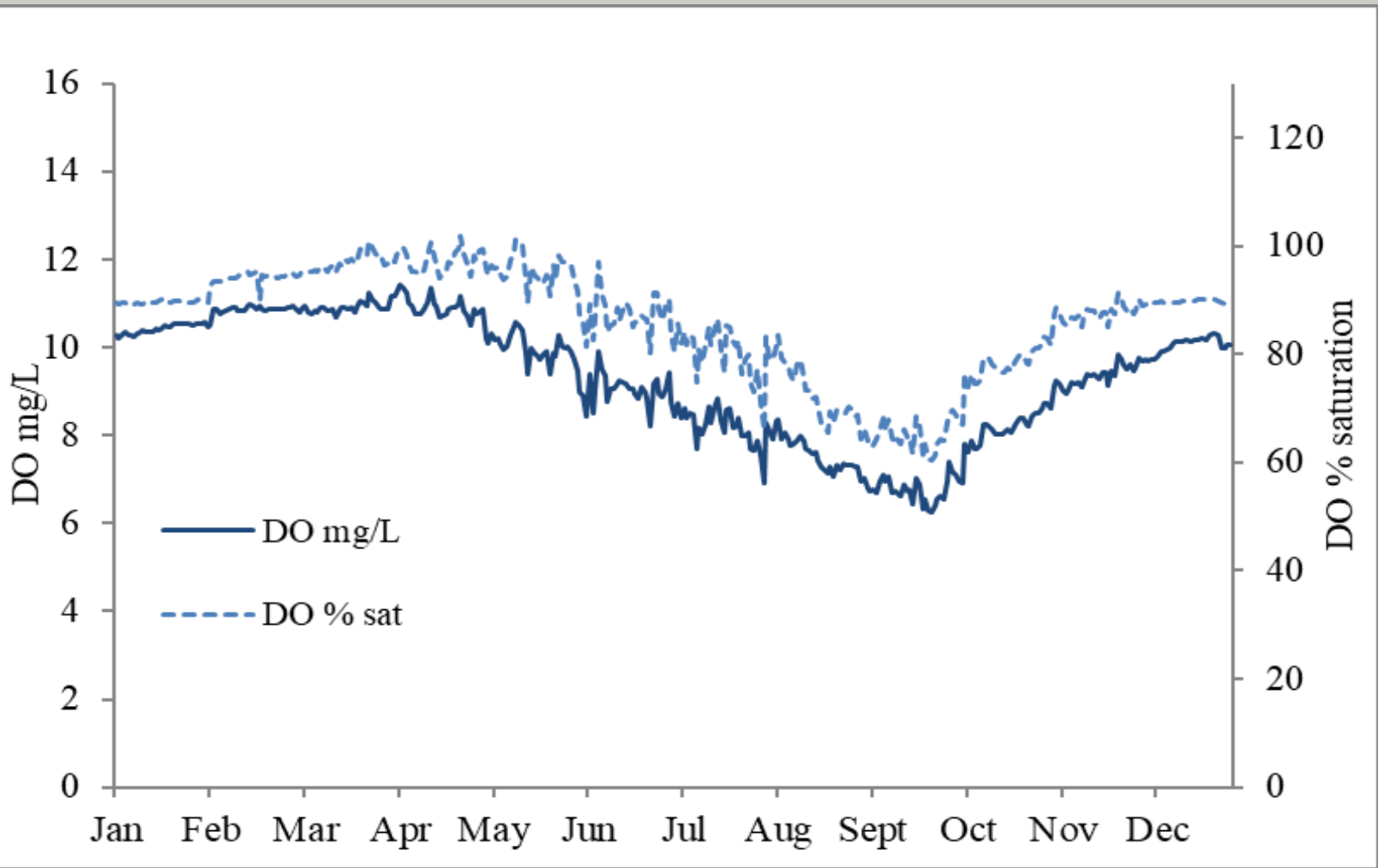
Metolius Arm DO mg\L 2024



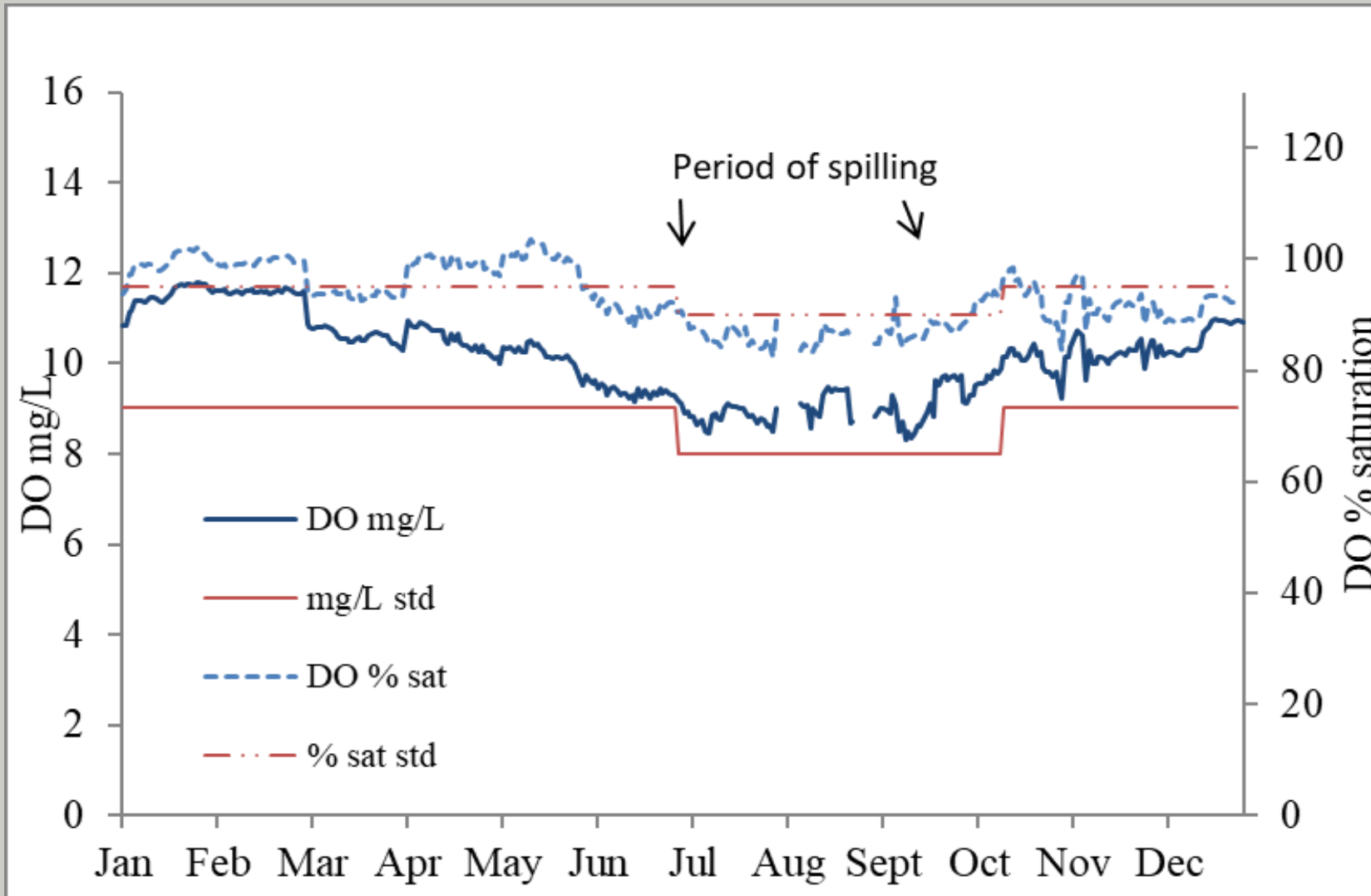
RBFB DO mg\L 2024



Dissolved oxygen (daily minimum as mg/L and % saturation) at Round Butte Dam tailrace



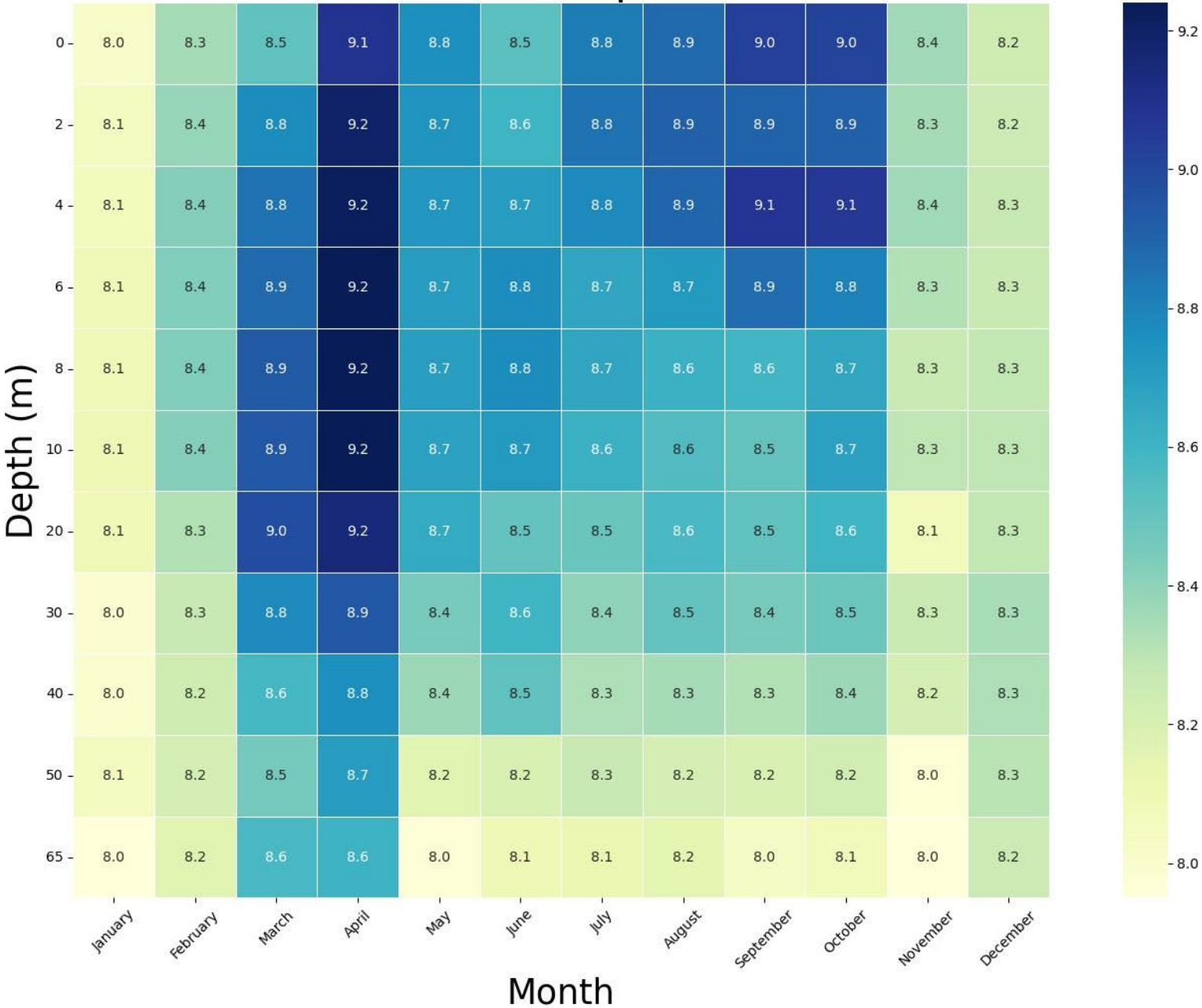
Dissolved oxygen (daily minimum as mg/L and % saturation) at Reregulating Dam tailrace



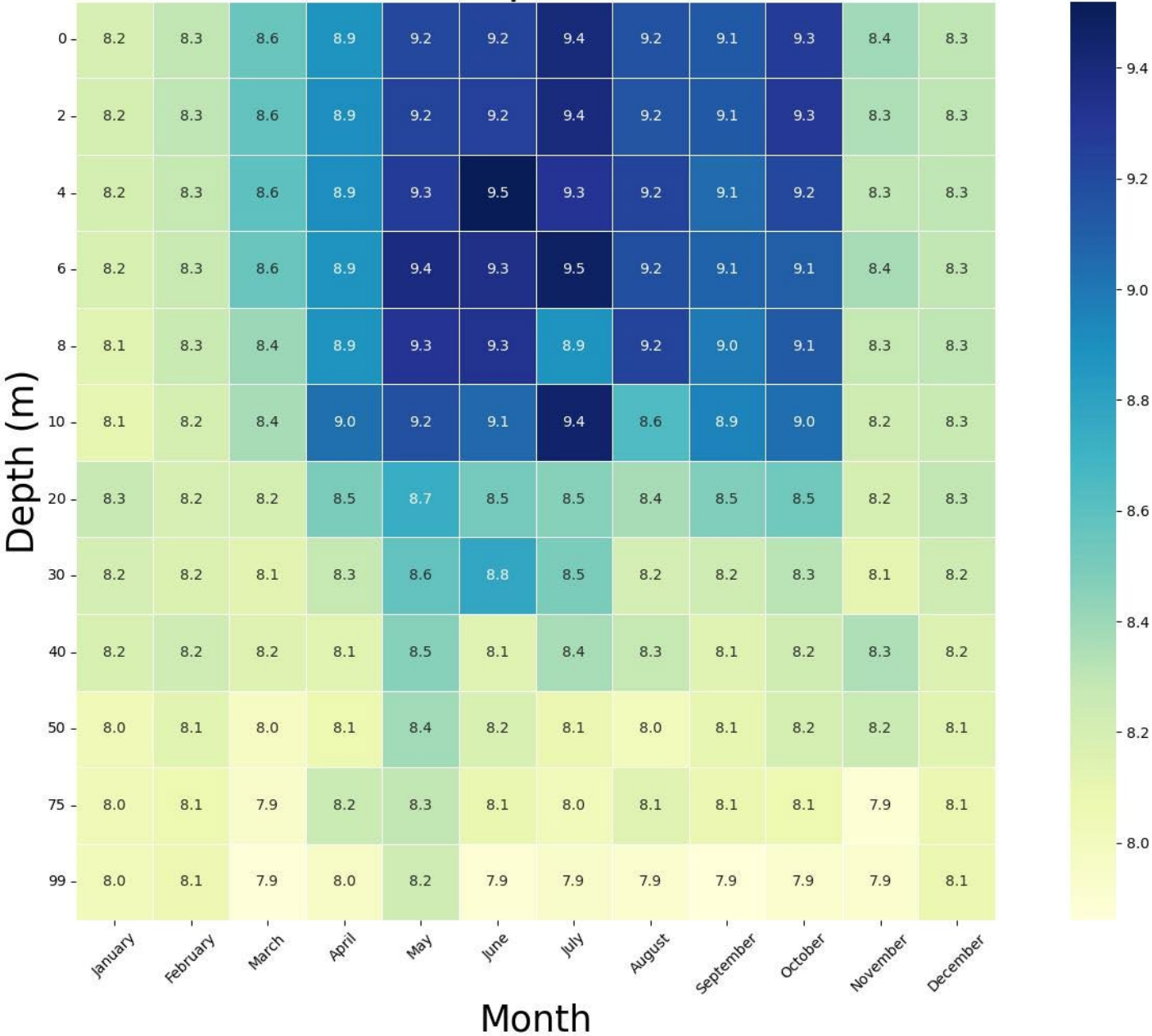
In 2024, spills were needed between August 5 - October 29 to boost discharge dissolved oxygen



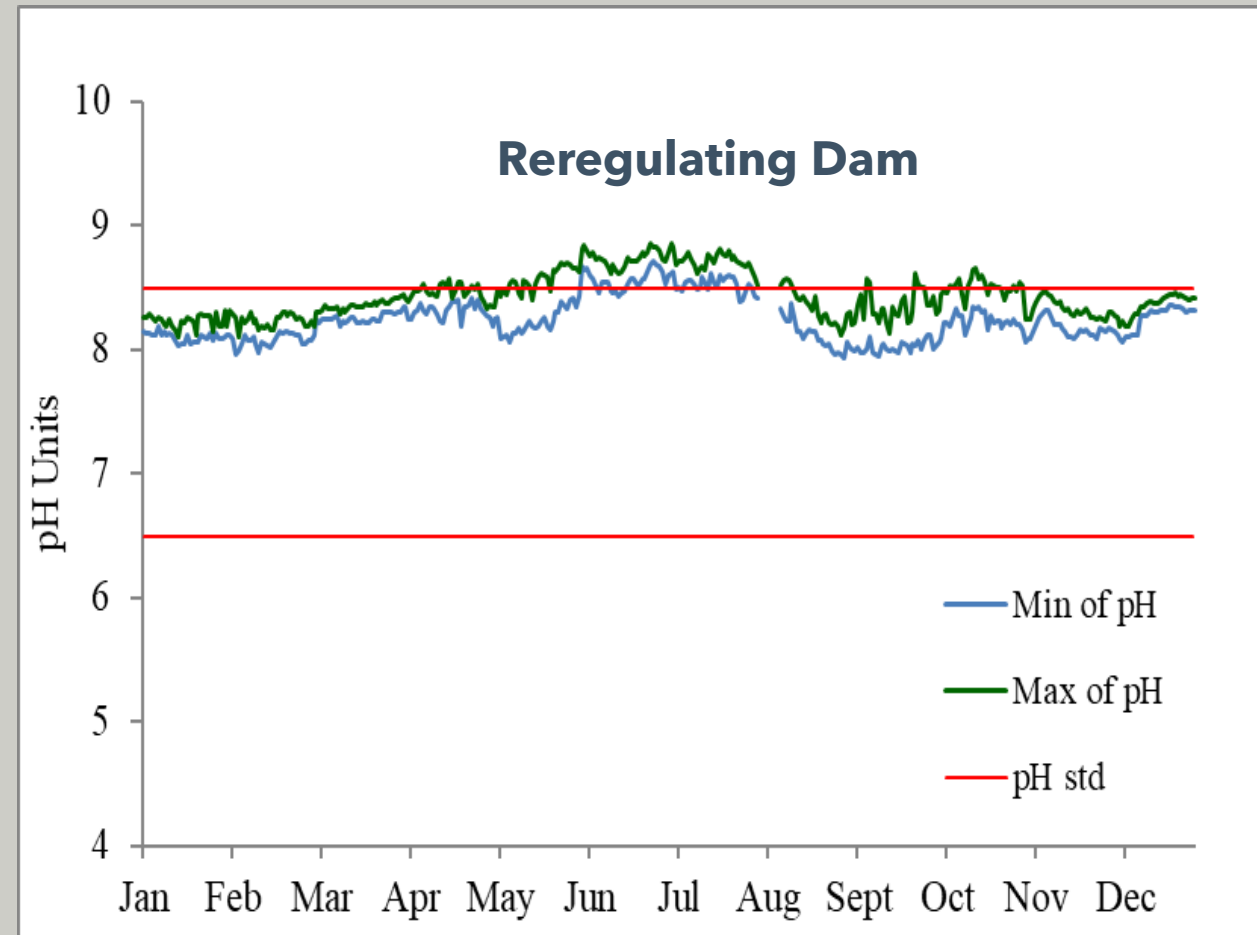
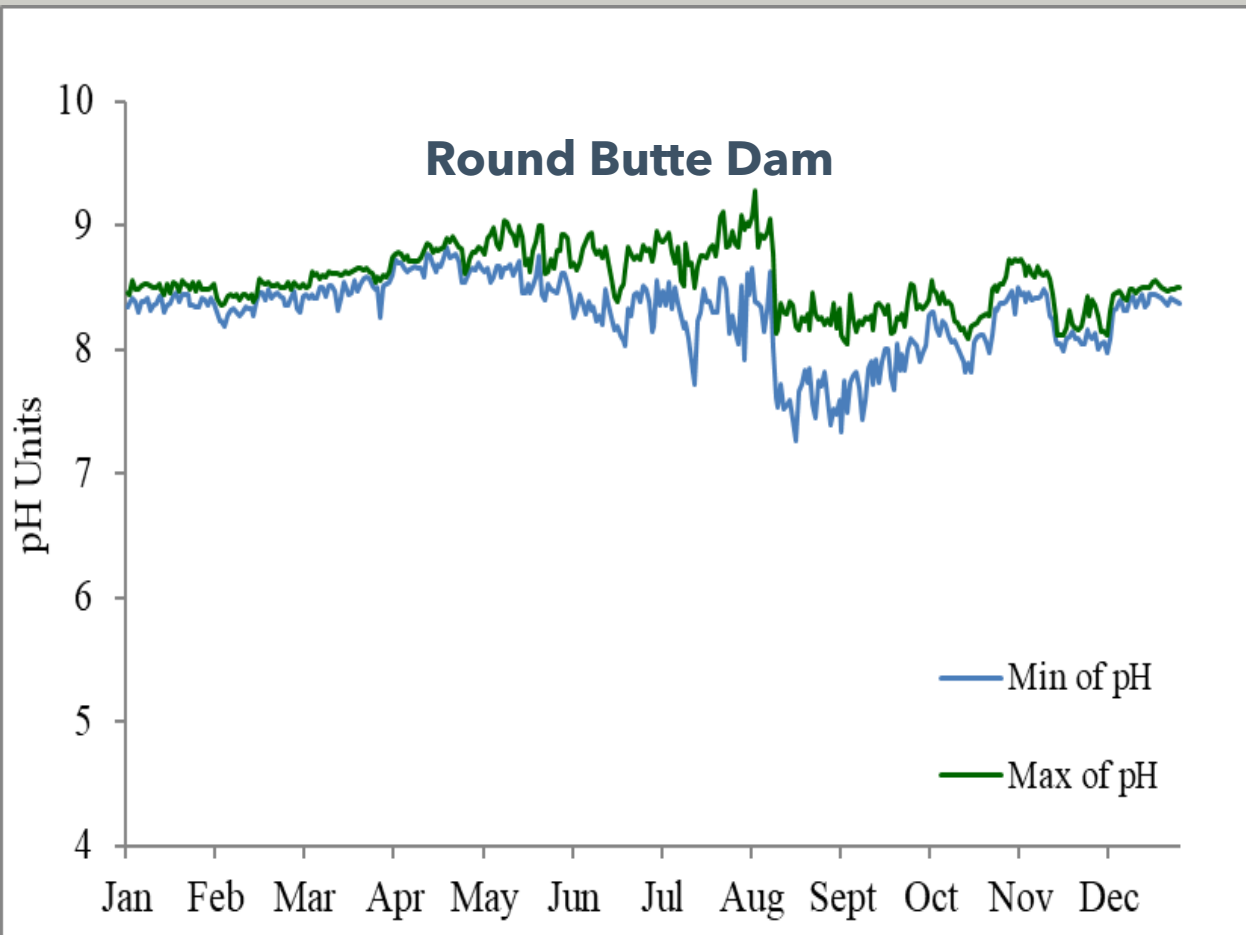
Metolius Arm pH 2024



RBFB pH 2024



Values of pH (daily maximum and minimum) at Round Butte Dam tailrace and Reregulating Dam tailrace



For more information:

VIEW FULL REPORTS:

[2024 Water Quality Annual Report](#)

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