

CACHE LA POUFRE TEMPERATURE MONITORING PROGRAM WATER YEAR 2019

The following describes Northern Water's temperature monitoring on the Cache la Poudre River. The objectives of this program are to:

- Provide data to assess compliance of Colorado's temperature standards for protection of aquatic life
- Support development of appropriate Poudre River temperature mitigation measures
- Track long-term changes in temperature before and after NISP components are built and implemented

Data collection began in 2014.

Monitoring Sites

The 2019 Cache la Poudre Temperature Monitoring Program consists of eight monitoring sites starting upstream of the North Fork of the Poudre and ending at the confluence with the South Platte River. The sites include:

- 6 sites on the mainstem of the Poudre River upstream and/or downstream of major inflows or at locations that are important from a regulatory standpoint
- 2 sites on tributaries to the Poudre River; the North Fork and Fossil Creek

The sites are listed in Table 1.

TABLE 1 - POUFRE RIVER TEMPERATURE MONITORING SITES

| Station | Description | Latitude | Longitude | Datum |
|---------|--|----------|------------|-------|
| PR-NFU | Poudre River upstream of the North Fork | 40.70322 | -105.24252 | WGS84 |
| NF-PRU | North Fork upstream of the Poudre River | 40.70154 | -105.24037 | WGS84 |
| PR-NFD | Poudre River downstream of the North Fork | 40.6973 | -105.2448 | WGS84 |
| PR-SHI | Poudre River at Shields Street in Fort Collins | 40.6033 | -105.0962 | WGS84 |
| PR-BCU | Poudre River upstream of Boxelder Creek | 40.55201 | -105.01116 | NAD83 |
| PR-BCD | Poudre River downstream of Boxelder Creek | 40.53784 | -104.99977 | NAD83 |
| FC-PRU | Fossil Creek upstream of Poudre River | 40.4976 | -104.9853 | NAD83 |
| PR-FCD | Poudre River downstream of Fossil Creek | 40.5013 | -104.9673 | NAD83 |

Station Operation and Maintenance

Northern Water maintains all the temperature stations.

A HOBO ProV2 temperature logger is used at all sites. The logger records temperature at one-minute intervals and averages the one-minute data every 15 minutes, 24 hours a day while deployed. Each station is equipped with two HOBO data loggers; a primary and a secondary logger. This provides validation of the recorded temperature data and guards against gaps in the data set in case of sensor malfunction.



Hobo Pro V2 Water Temperature Logger

At all sites, except FC-PRU, the logger is placed in the thalweg of the stream per Northern Water's Standard Operation Procedure (SOP), "Protocols for Representative Temperature Monitoring of Rivers and Streams." At FC-PRU access to the water is limited, therefore the logger is attached to a bridge from which it hangs into the water.

Station visits are conducted monthly (or as conditions allow) to download the data, take manual water temperature measurement for comparison, and to clean and inspect the equipment. Data are collected year-round at most sites. Data are collected beginning in early spring (the earliest conditions that allow for equipment installation) through late fall at FC-PRU.

The data are processed, uploaded and validated in Northern Water's Aquarius database. All the data are finalized during the winter following the sampling season. The final data are available on Northern Water's website at:

<http://www.northernwater.org/WaterQuality/EastSlopeWaterTemperatureData.aspx> .

Map of Sampling Locations

