Cook Inletkeeper coordinates a Stream Temperature Monitoring Network across key salmon-bearing systems of the Cook Inlet basin. Our goal is to describe water temperature profiles and identify watershed characteristics that make specific streams more sensitive to climate change impacts. This fact sheet provides a summary of data collected on Troublesome Creek through this collaborative effort.

The Troublesome Creek watershed (highlighted in green on map) is located in the Mat-Su basin. The creek flows into the Chulitna River which joins the Susitna River at Talkeetna.

- Watershed size: 24,628 acres
- Maximum elevation: 2,856 feet
- Mean elevation: 1,906 feet
- Percent wetlands: 2.2%
- Connected lakes: No

Water temperature monitoring site is located downstream of the Parks Highway.
Latitude (N) 62.62700; Longitude (W) -150.22700

**Why temperature?**

Water temperature affects all phases of the salmon lifecycle, including:
- timing of migration
- survivorship of eggs
- respiration
- metabolism
- availability of O₂

Warm water temperature induces stress in salmon and makes them more vulnerable to pollution, predation and disease.

For more details about our methods or data, please contact:

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Climate Change Vulnerability

We can use our current knowledge of the relationship between air and water temperature to develop stream-specific predictions for future water temperature. “Sensitivity” is a term used to describe how much a stream’s water temperature will change with a 1°C (1.8°F) change in air temperature. A stream with a higher sensitivity (>0.75) will increase faster as air temperatures increase in the years ahead. And we can use a salmon-relevant threshold value of 13°C (55°F) for average July temperature to describe a stream as “cold” or “warm” to create a framework for assessing climate change vulnerability:

- Cold Temperature - High Sensitivity
- Warm Temperature - High Sensitivity
- Cold Temperature - Low Sensitivity
- Warm Temperature - Low Sensitivity

Troublesome Creek falls in the “cold, low sensitivity” category, which indicates that stream temperatures will likely remain favorable for salmon and this system can serve as important cold water habitat in the decades ahead.

This baseline data set and our understanding of stream-specific sensitivity can guide future monitoring efforts to track climate change impacts and can help fisheries and land managers prioritize streams for research and protection efforts to ensure Cook Inlet wild salmon endure as thermal change continues.