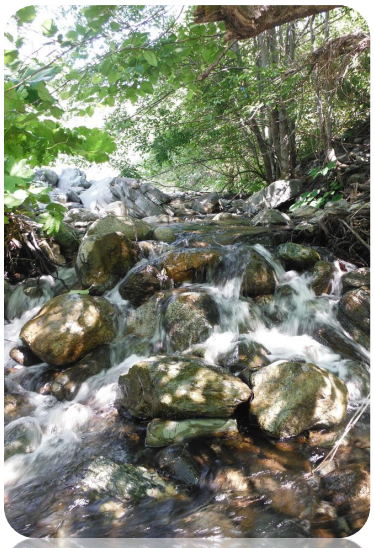
Stream Temperatures in the South Fork Trinity River Watershed 1989-2015



J. Eli Asarian

Riverbend Sciences

June 30, 2016

Prepared for:

THE WATERSHED CENTER
HAYFORK, CALIFORNIA

Funded by:
California Department of Fish and Wildlife
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Photo credits for cover page (clockwise from top):

A. South Fork Trinity River near Kerlin Creek in Hyampom Valley, 6/23/2015 (Samantha Chilcote); B. Plummer Creek near mouth, 7/15/2015 (Samantha Chilcote); C. water temperature probe (Eli Asarian), D. Diversion structure on Silver Creek (Samantha Chilcote); and E. Hayfork Creek Canyon, 7/28/2015 (Eli Asarian).

EXECUTIVE SUMMARY

Water temperature has long been identified as a primary factor limiting the production of salmon and steelhead in the South Fork Trinity River (SFTR) watershed. There have been some previous analyses evaluating temperature data for the SFTR watershed, but this project is by far the most comprehensive. The goal of this study is to 1) acquire, compile, and quality check all available water temperature data for the SFTR watershed, 2) calculate summary metrics for each site and year, 3) rate water temperature conditions according to suitability for coho salmon and steelhead trout, and 4) create tables and maps summarizing results. The results of this analysis will be used to develop future projects to restore aquatic habitat and watersheds within the SFTR.

The compiled dataset spans the years 1989 through 2015. There are a total of 245 sites, 155 reaches, 897 unique site-year combinations, and 5.5 million measurements. Data contributors include the U.S. Forest Service, Humboldt State University's Forest Science Project, The Watershed Research and Training Center, Green Diamond Resource Company, US Fish and Wildlife Service, California Department of Fish and Wildlife, Timber Products Company, and Graham Matthews and Associates. All sites were assigned to reaches in a Geographic Information System (GIS) stream network from the National Stream Internet (NSI). Assigning the SFTR temperature monitoring points to NSI stream reaches will allow the data to be easily integrated into future stream temperature models such as the U.S. Forest Service's Rocky Mountain Research Lab's NorWeST project. In some analyses, we lump all sites within a reach together. We acknowledge that this lumping can mask important differences between sites; however, it makes spatial patterns much easier to visualize on maps at large scales.

After an intensive screening and trimming process which identified and corrected many errors and inconsistencies in the dataset, daily and seasonal statistics were calculated for each site and year. Seasonal statistics included Maximum Daily Maximum Temperature (MDMT), Maximum Weekly Maximum Temperature (MWMT), and Maximum Weekly Average Temperature (MWAT). MWMT is the average daily maximum temperature during the hottest seven-day period of the year. The four statistics are all highly correlated with each other. All four statistics were calculated and included in report appendices, but for the sake of simplicity the main text and figures in the report focus almost solely on MWMT. For purposes of differentiating categories of stream temperatures in the SFTR watershed and prioritizing areas where it may be feasible to restore coho salmon, MWMT thresholds for salmonid suitability were selected based on a literature review, with upper limits for coho salmon defined as <18 °C as "likely suitable" and <20 °C as "possibly suitable."

Stream temperatures in the SFTR watershed typically peak in July or August. On average, July is slightly warmer than August. There is considerable year-to-year (and to a lesser extent, site-to-site) variation in the date that peak temperatures occur.

Many sites were monitored for only a few years, and therefore the available data do not encompass the full range of conditions that occurred during the 1989-2015 period. An approximate index of cool vs. warm years was developed based on the MWMT relative anomaly (i.e., ratio of MWMT for individual years to the mean MWMT calculated from all years). Based on the MWMT relative anomaly, the five warmest years (listed in order of warmth) were 2015, 2006, 2014, 2009, and 1994 and the five coolest years were 1993 (very few stations that year), 2011, 1999, 1989, and 2012.

For analytical purposes, the SFTR was divided into six study watersheds: Lower SFTR, Middle SFTR, Upper SFTR, Lower Hayfork Creek, Middle Hayfork Creek, and Upper Hayfork Creek. Each of these watersheds contained sites with a diverse range of temperatures; however, there are differences in the temperature distribution between watersheds. The Middle Hayfork Creek watershed has a lower percent of tributaries with MWMT temperatures possibly suitable (<20 °C) for coho salmon than the other watersheds. Relative to the other sub-watersheds, a greater percent of tributaries accessible to anadromous fish in the Upper and Lower Hayfork sub-watershed have MWMT temperatures likely suitable (<18 °C) for coho salmon. Mainstem temperatures were lowest in the headwaters of the Upper SFTR.

MWMT temperature is strongly correlated with drainage area, and most streams show the expected pattern of warming as water flows downstream from cold, well-shaded headwaters into wider alluvial channels which are more exposed to solar radiation (Figure ES-1). One exception is Hayfork Creek, which exhibits a more complex pattern where temperatures are highest in the creek's middle reaches within the Hayfork Valley where riparian canopy is poor and streamflow is depleted due to water diversions. Temperatures are then cooler within the Hayfork Creek Canyon, likely due to topographic shade and inflow from cooler tributaries. Hayfork Creek then warms again as it flows through Hyampom Valley before reaching its confluence with the South Fork Trinity River.

MWMT temperatures <18 °C and <20 °C occur primarily at sites with drainage areas less than 100 km^2. Sites with abnormally cold water relative to the drainage area include Miners Creek and Bear Creek in the Lower Hayfork Creek watershed; Little Creek, upper Barker Creek, and upper Big Creek in the Middle Hayfork Creek watershed; Goods Creek in the Upper Hayfork Creek watershed; Old Campbell/Madden Creek in the Lower SFTR watershed; lower Butter Creek in the Middle SFTR watershed; and Cable Creek and Prospect Creek in the Upper SFTR watershed.

For each of the SFTR's watersheds, the report presents a map showing site locations, a graph grouped into reaches showing MWMT temperatures for each site and year, annual time series of MWMT temperatures at a subset of sites, and discussion of data gaps. Data for all sites are included but the discussion focuses on stream reaches that are accessible to anadromous salmonids, especially coho salmon.

A review of data gaps recommends additional stream temperature data collection at sites including: 1) Big Creek, Mill Creek, and Kerlin Creek near Hyampom within the Lower SFTR watershed, 2) the SFTR below its confluence with East Fork SFTR in the headwaters of the Upper SFTR watershed, 3) West Fork Tule Creek, Kingsbury Gulch, and North Fork Philpot Creek, Salt Creek headwaters, and lower Ditch Gulch within the Middle Hayfork Creek watershed, and 4) headwaters of Hayfork Creek and East Fork Hayfork Creek in the headwaters of the Upper Hayfork Creek watershed.

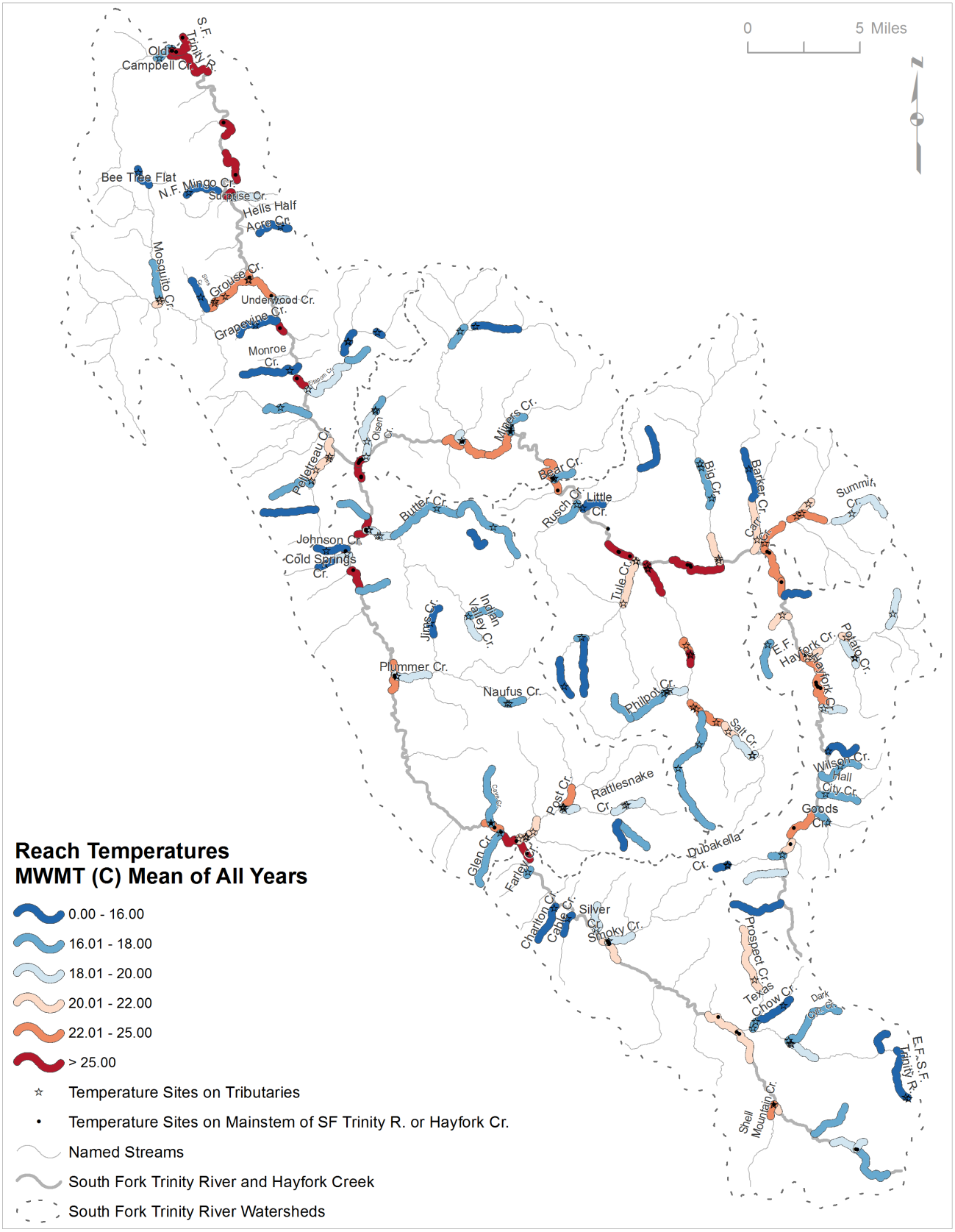

Figure ES-1. Map with all-year reach-level summary of Maximum Weekly Maximum Temperature (MWMT) within the South Fork Trinity River watershed. MWMT is the average daily temperature during the hottest seven-day period of the year. Mean reach MWMT values were calculated as the mean of all MWMTs across all years (1989-2015) and sites within a reach. Reaches are color-coded according to the MWMT salmonid suitability categories in Table 2 and labelled by stream name.

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ELECTRONIC APPENDICES:

APPENDIX 2a: Graphs of site and reach temperatures with Google Earth interface
Google Earth files (.KML and .KMZ format) show temperature sites and reaches color-coded by the same mean MWMT temperature ranges used in this report. Clicking on a temperature point in Google Earth will open a pop-up window showing additional information about each point (e.g., MWMT value for each individual year of available data, stream name, data source, etc.). If you first unzipped the entire appendix before opening the Google Earth file, then the pop-up window will include links to detailed graphs in PDF format (e.g., hourly and daily temperatures). The PDF graphs can also be browsed outside of Google Earth. This appendix also includes ArcGIS files of temperature site locations and reach, which attribute tables including MWMT temperature for each individual year.

APPENDIX 2b: Complete dataset of hourly stream temperature measurements
MS Access database of hourly stream temperature measurements.

APPENDIX 2c: Complete dataset of daily stream temperature summaries
MS Excel speadsheet of daily summaries of stream temperature data. Include pivot charts for browsing the data.

APPENDIX 2d: Complete dataset of annual water temperature summaries
MS Excel spreadsheet of annual summaries of stream temperature data. Include pivot charts for browsing the data.

APPENDIX 2e: Complete dataset of stream temperature site location attributes
MS Excel spreadsheet of site locations and associated information.

(Note: electronic appendices are numbered as 2a through 2e, because this temperature analysis is appendix 2 of the South Fork Trinity River Supplemental Watershed Assessment [see Section 1.3 for explanation]).

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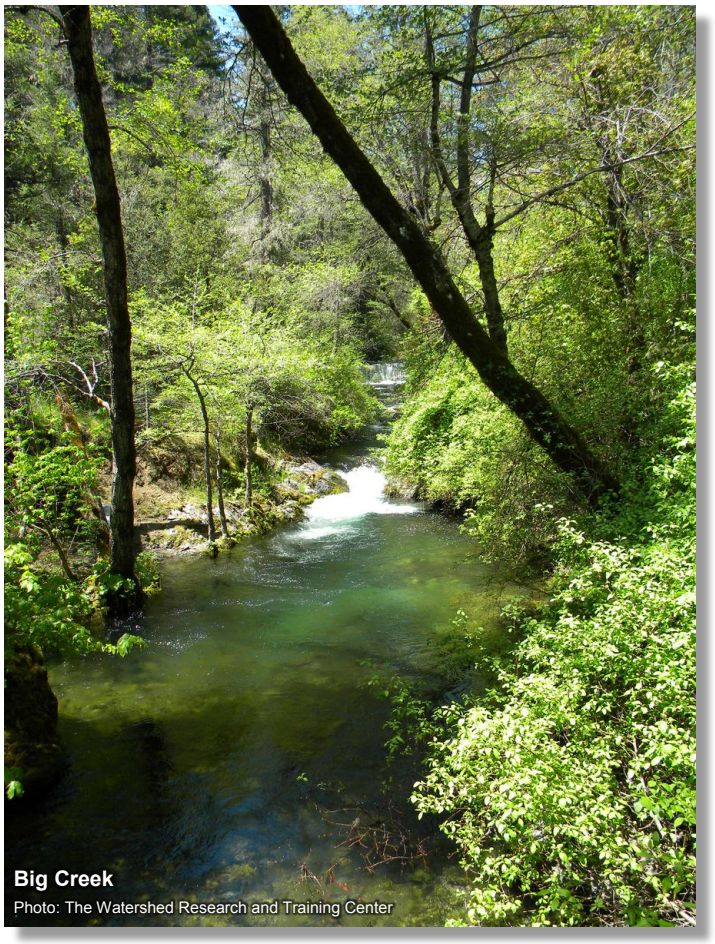

Big Creek
Photo: The Watershed Research and Training Center

1 INTRODUCTION

1.1 DESCRIPTION OF STUDY AREA

The South Fork Trinity River (SFTR) watershed is located on the North Coast of California (Figure 1). The area has a Mediterranean climate with primarily mountainous terrain. Vegetation includes conifer forests, oak woodlands, and grasslands. Precipitation falls primarily as rain except at the highest elevations, which are at the southern end the watershed. The basin is home to three species of anadromous salmonid fishes: Chinook salmon (*Oncorhynchus tshawytscha*, including both fall-run and spring-run), coho salmon (*Oncorhynchus kisutch*, Figure 2), and steelhead trout (*Oncorhynchus mykiss*). The lower-gradient valleys have the highest intrinsic potential for coho salmon (Figure 2).

With a watershed area of 932 square miles, the South Fork Trinity River is the largest undammed river in California (NMFS 2014). There are many smaller surface water diversions and groundwater wells associated with rural residences and marijuana cultivation sites on both private and public lands, pastures and forage crops in the Hayfork Valley, vineyards in the Hyampom Valley, and a municipal water system in Hayfork. Hayfork's municipal water system is primarily supplied by the off-stream Ewing Reservoir, which receives water from Big Creek diverted during the spring (WRTC 2008).

Geology within much of the watershed is highly prone to erosion. The watershed is still recovering from the great flood of 1964 during which catastrophic landslides and erosion occurred, exacerbated by tractor logging and road building (PWA 1994).

Additional information about the watershed can be found in the South Fork Trinity River Supplemental Watershed Assessment (WRTC 2016, see section 1.3 below).

1.2 PREVIOUS ASESSMENTS OF STREAM TEMPERATURES IN THE SOUTH FORK TRINITY RIVER WATERSHED

Water temperature has long been identified as a primary factor limiting production of salmon and steelhead in the South Fork Trinity River watershed (PWA 1994, PTA and PWA 1996, NMFS 2014). The SFTR is listed as impaired under the Clean Water Act Section 303(d) for both sediment and temperature, but a Total Maximum Daily Load has yet to be developed for water temperature (NMFS 2014). The US Forest Service (USFS) has been collecting thermograph data since the late 1980s and other organizations such as The Watershed Research and Training Center (WRTC) and Trinity County Resource Conservation District (RCD) have also collected supplementary data in recent years. Partial analyses have evaluated pieces of this rich temperature dataset, including by Buer and Senter (1982), U.S. Forest Service (1996, 1998), Farber et al. (1998), TCRCD (2003), and WRTC (2008), but it was never compiled and entirely analyzed.

In addition to local SFTR analyses mentioned in the previous paragraph, there have been two major stream temperature compilation and analysis projects in the northwest California region which encompasses the SFTR watershed. The Humboldt State University (HSU) Forest Science Project (FSP) compiled data for 1990-1998 from a multitude of entities, including private timber companies, state and federal agencies, non-profit organizations, and consultants (Lewis et al. 2000). Lewis et al. (2000) then applied statistical models to these data to evaluate relationships between water temperature and variables including air temperature, distance from the Pacific Ocean, elevation, watershed area, and site-specific attributes (e.g., channel width, gradient, and canopy).

In 2015, the U.S. Forest Service's Rocky Mountain Research Lab's (RMRL) NorWeST[1] project completed a stream temperature modeling effort for northwest California, which NorWeST refers to as the "Northern California Coastal Klamath processing unit." The NorWeST project uses observed temperature data, Geographic Information Systems (GIS) data, and a multivariate spatial stream network statistical model to produce a spatially continuous prediction of mean August temperature throughout the entire stream network (Isaak et al. 2010, 2014). Once calibrated for current conditions, a variety of climate change scenarios were run. Model predictions[2] and daily/annual summaries of measured water temperature data[3] are available online. For calibration data, the 2015 NorWeST model for the region relied heavily on stream temperature data from the US Forest Service's Natural Resource Information System Aquatic Surveys (USFS NRIS AqS), with limited supplementation from other datasets. In the time since the NorWeST modeling began, several projects within the North Coast have compiled new stream temperature datasets. These projects include this South Fork Trinity River project, other in-progress Riverbend Sciences projects in the Klamath River and Eel River Basins, and data compilation for the remainder of the region by the North Coast Regional Water Quality Control Board. Given the pending availability of large new temperature datasets within the North Coast, as well as previous compilations which were not utilized such as the HSU FSP project mentioned in the previous paragraph, RMRL has agreed to re-run the NorWeST model for the entire North Coast in fall 2016.

1.3 RELATIONSHIP OF STREAM TEMPERATURE ANALYSIS TO OVERALL WATERSHED ASSESSMENT REPORT

The *South Fork Trinity River Supplemental Watershed Assessment* (Watershed Assessment) is a gap analysis for the SFTR watershed completed by the Watershed Research and Training Center (WRTC 2016) for the Fisheries Restoration Grant Program (FRGP). The assessment focuses on major information gaps which were chosen utilizing specific tasks outlined in the Southern Oregon Northern California Coast (SONCC) Coho Recovery Plan (NMFS 2014). The WRTC utilized its unique knowledge of the SFTR watershed to choose the most pertinent and imperative tasks from the recovery plan to focus on. The central document of the South Fork Trinity River Supplemental Watershed Assessment outlines the overall goals, overview of the watershed, past studies, and the summaries of major findings from each individual sub-topic assessment. The Watershed Assessment project has been broken into multiple documents based upon individual sub-topics for ease of use and sharing. Each individual sub-topic assessment is written up with the complete suite of analyses and data in an appendix to the larger Watershed Assessment. This report is the Stream Temperature Analysis sub-topic (Appendix 2). WRTC intends that the Watershed Assessment will be used to identify and prioritize a suite of projects in the South Fork Trinity River Watershed that are essential to the recovery of its fisheries and overall watershed health.

1.4 STUDY GOALS

The goal of this temperature analysis is to 1) acquire, compile, and quality check all available water temperature data for the SFTR watershed, 2) calculate summary metrics for each site and year, 3) rate water temperature conditions according to suitability for coho salmon and steelhead trout, and 4) create tables and maps summarizing results. The results will be used to inform watershed restoration activities.

[1] http://www.fs.fed.us/rm/boise/AWAE/projects/NorWeST.html
[2] http://www.fs.fed.us/rm/boise/AWAE/projects/NorWeST/ModeledStreamTemperatureScenarioMaps.shtml
[3] http://www.fs.fed.us/rm/boise/AWAE/projects/NorWeST/StreamTemperatureDataSummaries.shtml

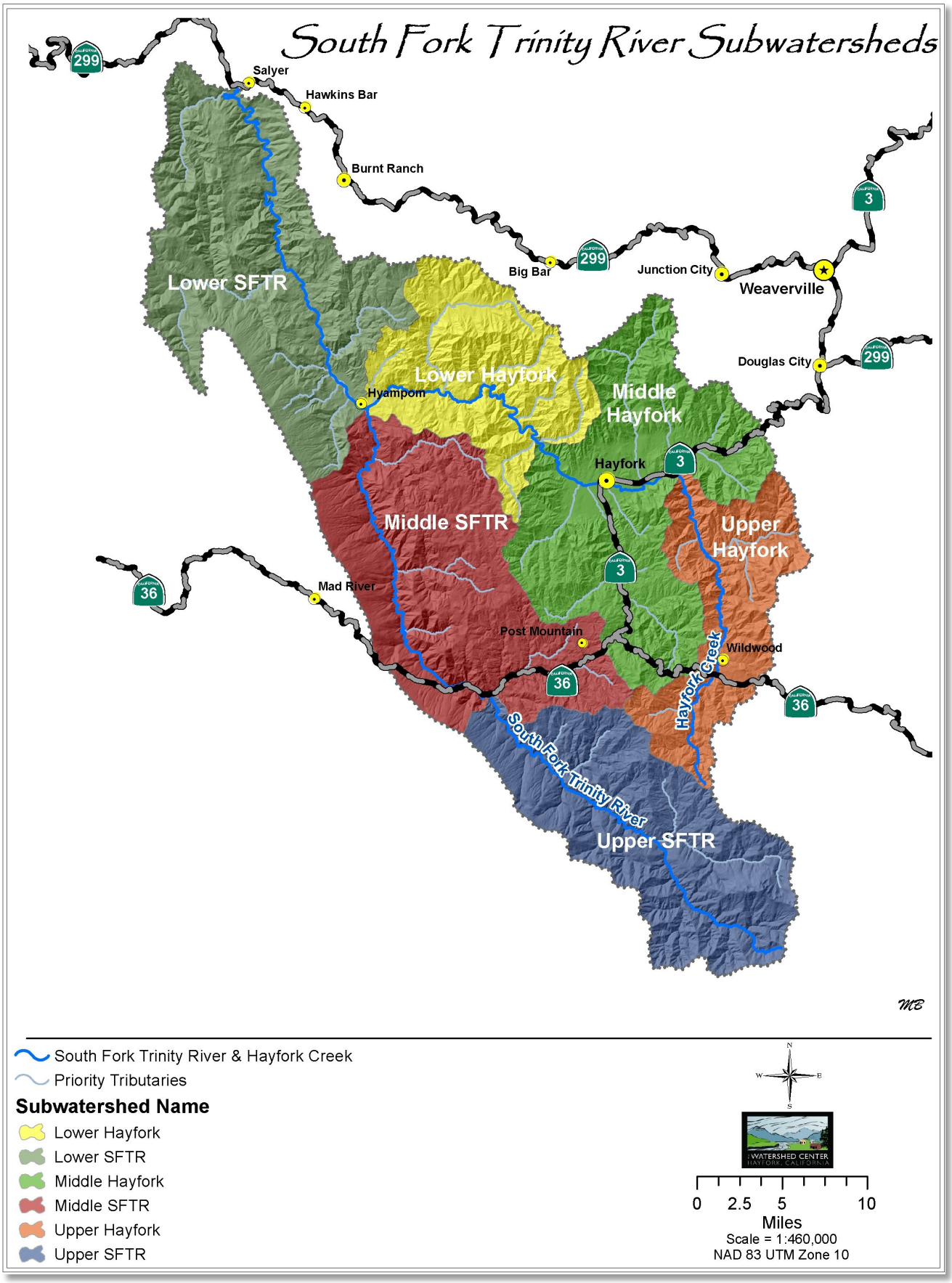

Figure 1. Major subwatersheds and towns within the South Fork Trinity River watershed and adjacent areas.

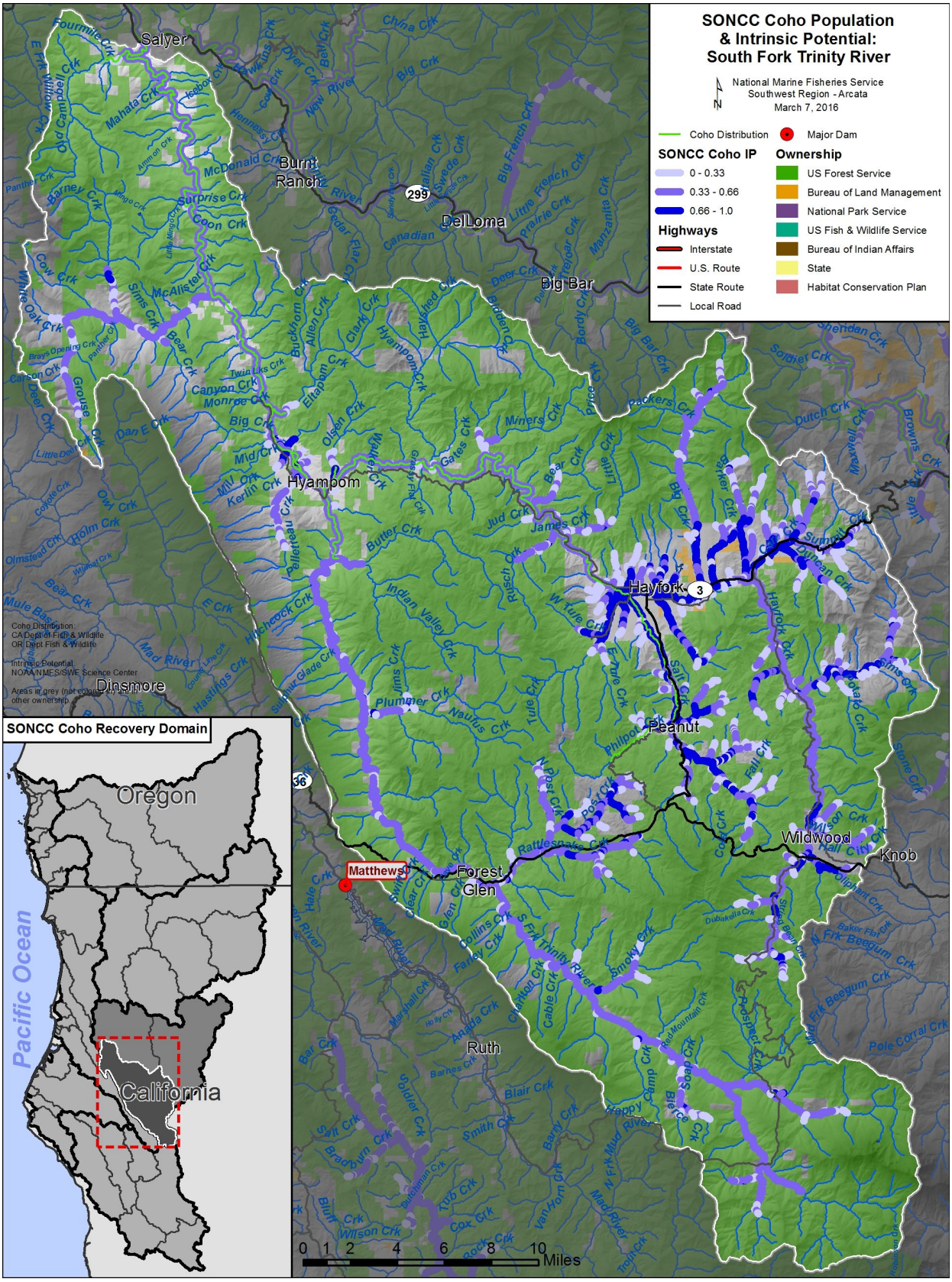

Figure 2. The geographic boundaries of the South Fork Trinity River coho salmon population. Figure shows modeled Intrinsic Potential of habitat (Williams et al. 2006), land ownership, coho salmon distribution (CDFG 2012a), and location within the Southern-Oregon/Northern California Coast Coho Salmon Evolutionarily Significant Unit (Williams et al. 2006). Grey areas indicate private ownership. Map provided by Douglas Chow of NMFS, adapted from NMFS (2014) coho salmon recovery plan.

2 METHODS

2.1 STREAM TEMPERATURE DATA SOURCES ACQUIRED AND COMPILED

Data was acquired from a multitude of sources (Table 1) by Eli Asarian with assistance from WRTC's Watershed and Fisheries Restoration Program Manager Joshua Smith. The data span the years 1989-2015. There are a total of 245 sites, 155 reaches, 897 unique site-year combinations (Table 1, Figure 3, Figure 4), and 5.5 million individual measurements. The vast majority of the data were acquired at their original temporal resolution, which ranged from 15 to 120 minutes, but data from Green Diamond Resource Company and Timber Products Corporation were only acquired as annual summaries. Information on the individual datasets is provided in the sections 2.1.1 to 2.1.9. Section 2.1.10 lists the datasets that were not acquired.

Table 1. Summary of the number of stream temperature sites and years monitored by each data source available in the South Fork Trinity River watershed. The totals do not equal the sum of the individual rows because some sites and reaches are shared between datasets, and totals do not include the datasets marked as overlap. Data sources are listed in descending order of number of site-years.

Source Entity Full Name	Source Entity Abbreviated	First Year	Last Year	# of Site Years	# of Sites	# of Reaches
U.S. Forest Service, Natural Resource Information System Aquatic Surveys	USFS AqS	1989	2015	665	167	114
Humboldt State University's Forest Science Project (overlapping with USFS AqS)	HSU FSP (overlap)	1990	1998	109	40	39
Humboldt State University's Forest Science Project (not overlapping with USFS AqS)	HSU FSP (not overlap)	1990	1998	65	33	33
The Watershed Research and Training Center	WRTC (not overlap	2010	2015	79	36	32
The Watershed Research and Training Center	WRTC (overlap)	2011	2011	3	3	3
Green Diamond Resource Company	GDRC	1998	2012	55	6	5
U.S. Fish and Wildlife Service, Arcata Office	USFWS	2001	2015	15	1	1
California Department of Fish and Wildlife, Weaverville Office	CDFW	2015	2015	9	9	9
Timber Products Company	TPC	1997	1997	5	5	5
U.S. Forest Service, Redwood Sciences Lab	USFS RSL	2008	2010	2	1	1
U.S. Forest Service, Redwood Sciences Lab	USFS RSL	2008	2010	1	1	1
Graham Matthews and Associates	GMA	2007	2007	2	2	2
TOTALS (excluding overlap)		1989	2015	897	245	155

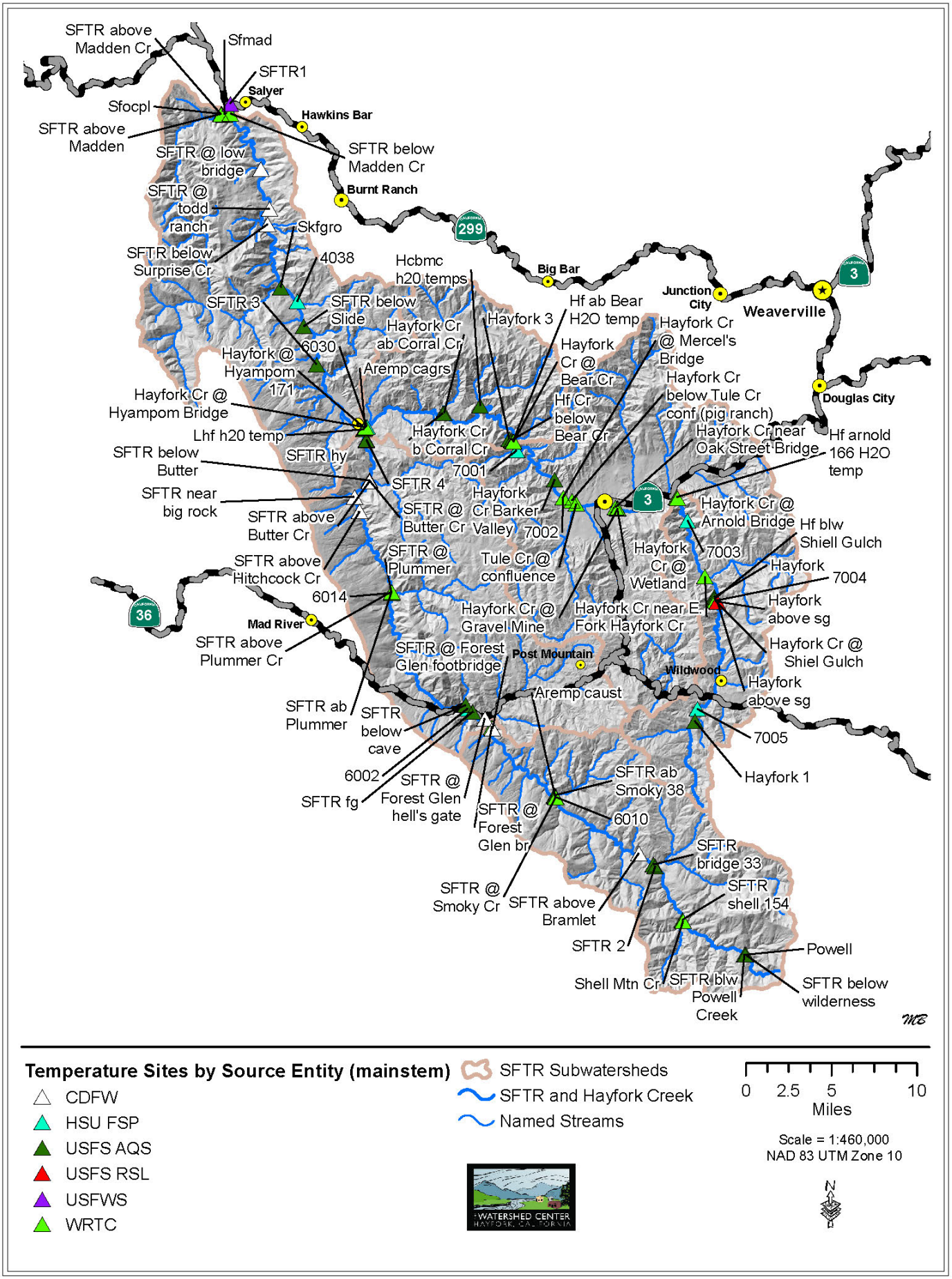

Figure 3. Location of stream temperature sites on the mainstems of the South Fork Trinity River and Hayfork Creek.

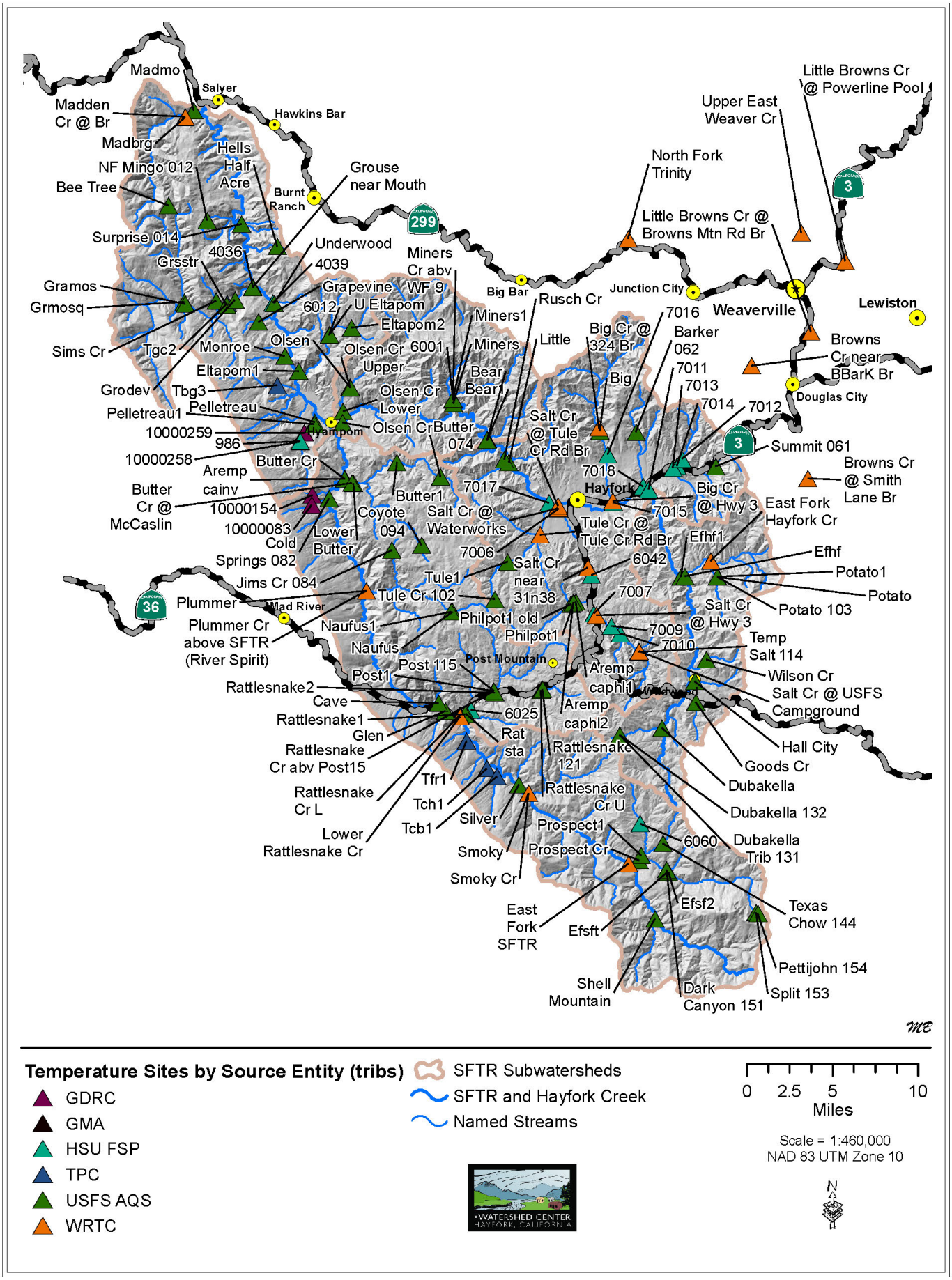

Figure 4. Location of stream temperature sites on the tributaries of the South Fork Trinity River watershed. The mainstems of the South Fork Trinity River and Hayfork Creek are excluded.

2.1.1 US FOREST SERVICE, NATURAL RESOURCE INFORMATION SYSTEM AQUATIC SURVEYS

Nearly all data collected by U.S. Forest Service (USFS) within the SFTR watershed is input into the national Natural Resource Information System (NRIS) Aquatic Surveys (AqS) database[4]. Hydrologist Callie McConnell of the USFS office in Corvallis, Oregon extracted all SFTR temperature data and provided it for this project. Data are from multiple entities within USFS, including the Shasta-Trinity National Forest, Six Rivers National Forest, and the Aquatic and Riparian Effectiveness Monitoring Program (AREMP). The most recent version was obtained on February 2, 2016.

During data review, inconsistencies and apparent errors were discovered as expected given the large size of the dataset and that no previous comprehensive analysis was completed. Issues included probes exposed to air temperatures during, before, or after deployment or when streams went dry, probes buried in sediment during high-flow events, and mis-coded sites. These questions were discussed with Shasta Trinity National Forest fisheries biologist Eric Wiseman, who provided very useful information and reviewed field notes to troubleshoot issues. These issues were corrected in the version of the dataset used for analysis in this report, and a comprehensive inventory of issues was provided to Eric and Callie at the end of this project to facilitate correcting the master USFS AqS database. One final issue (which likely has little to no effect on seasonal summary statistics, so the data were not adjusted) is that there appears to be an error in the time of day in the 1995 data (see Appendix D).

2.1.2 HUMBOLDT STATE UNIVERSITY'S FOREST SCIENCE PROJECT

As noted above in section 1.2, Humboldt State University's (HSU) Forest Science Project (FSP) compiled data from the North Coast of California for 1990-1998 from a multitude of entities, including private timber companies, state and federal agencies, non-profit organizations, and consultants (Lewis et al. 2000). The FSP was later renamed the Institute for Forest and Watershed Management and is now dissolved. The data are extremely well organized and were rigorously reviewed during the Lewis et al. (2000) analysis, but one deficiency of the publicly shared version of the database is that there is no way to ascertain which entity collected any particular piece of data, which inhibits transparency and made it difficult to determine potential overlap with other datasets. The HSU FSP compilation included data from the Shasta-Trinity National Forest and Six Rivers National Forest which are also included in the USFS AqS database. Riverbend Sciences evaluated the overlap by comparing years and locations. Where overlap was detected, the HSU FSP data were marked as "Overlap" and not used in data analysis (though it was retained in the database).

2.1.3 THE WATERSHED RESEARCH AND TRAINING CENTER

The Watershed Research and Training Center[5] (WRTC) is a community-based non-profit organization located in Hayfork, California. The WRTC has unique and comprehensive access across the SFTR basin, and represents one of the few entities actively monitoring, assessing, and implementing restoration work in this area. Since 2010, the WRTC has been collecting water temperature data in the SFTR watershed as well as some streams in the adjacent mainstem Trinity River watershed. Probes are deployed and retrieved by a combination of WRTC staff,

[4] http://www.fs.fed.us/nrm/index.shtml
[5] http://www.thewatershedcenter.com/?page_id=645

local residents, and staff from other natural resource agencies. Despite little funding dedicated specifically for water temperature data collection, the WRTC has managed to collect an impressive amount of water temperature data. The sites are located primarily on private lands which fill important spatial gaps not covered by the USFS monitoring program.

The WRTC dataset included probes deployed by the U.S. Forest Service in 2010 (not included in USFS AqS database). A few sites had temperatures that were abnormally cooler or warmer in 2010 than in other years, indicating that data may have been mis-labelled. We obtained all the records we could from WRTC and USFS, but despite substantial effort could not find the master deployment table with a key to which probe numbers were deployed at which sites. The temperature values strongly suggested a three-way switch of sites in relatively close proximity, so we re-assigned the sites accordingly[6].

In 2011, WRTC data for three sites ("Madden Cr at Br" and "SF Trinity R below Madden Cr" and "SF Trinity R above Madden Cr") overlap with the USFS AqS database, so were marked as overlap and not included in the analysis.

2.1.4 GREEN DIAMOND RESOURCE COMPANY

Green Diamond Resource Company[7] (GDRC) is a private, family-owned forest products company which owns and manages forest land in California, Oregon, and Washington. GDRC used to own land on South Fork Mountain near Hyampom, including a large portion of the Pelletreau Creek watershed, and collected stream temperature data at several sites on the property from 1998 until 2012, when the land was sold to a new owner (New Island Capital). GDRC shared annual data summaries for this analysis.

2.1.5 U.S. FISH AND WILDLIFE SERVICE, ARCATA OFFICE

The U.S. Fish and Wildlife Service[8] (USFWS) office in Arcata, California collects stream temperature data at a network of monitoring sites within the Klamath and Trinity River basins and maintains the data in a well-organized Microsoft Access database. There is only one site within the SFTR watershed, located at the mouth of the mainstem SFTR. Data were received from USFWS fisheries biologist Mark Magnuson on February 1, 2016 with a note that the data are preliminary and are subject to change. Riverbend Sciences reviewed the data and did not find any apparent errors.

2.1.6 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, WEAVERVILLE OFFICE

California Department of Fish and Wildlife's Weaverville Office deployed 14 water temperature probes longitudinally along the mainstem SFTR in 2015 as a one-season study to capture the unique drought-year conditions (Hill 2016). CDFW was only able to provide electronic data for 9 of the 14 probes. Data were received from CDFW environmental scientist Andrew Hill on February 3, 2016.

[6] Site labeled as SFTR at Slide Creek campground was re-assigned to Plummer Creek, Plummer Creek was re-assigned to Eltapom Creek, and Eltapom Creek was re-assigned to SFTR at Slide Creek campground.
[7] https://greendiamond.com/responsible-forestry/research/fisheries/
[8] http://www.fws.gov/arcata/fisheries/activities/waterQuality/klamathWQ.html

2.1.7 TIMBER PRODUCTS COMPANY

During the late 1990s, the Timber Products Company[9] (TPC) collected temperature data in some streams in the SFTR watershed. Most of those data were likely included in the HSU FSP database, however, a map in Farber et al. (1998) shows some sites on western tributaries to the SFTR that were not included in the HSU FSP database, including three sites near Forest Glen (Cable Creek, Charlton Creek, and Farley Creek) and two sites near Hyampom (Lower Grouse Creek and Big Creek). Joshua Smith of WRTC contacted former TPC employee Stuart Farber, who was able to locate annual summaries for these sites in 1997 and provide them for use in analysis. Riverbend Sciences obtained spatial coordinates for these five sites from a GIS file created by the Trinity County Resource Conservation District that was included in a GIS project produced as a companion to the Klamath Resource Information System (KRIS) and was apparently used to generate the maps in Farber et al. (1998). It is likely that data were also collected at these same sites in 1998-1999 but data for those years could not be located (Farber, pers. comm.).

2.1.8 U.S. FOREST SERVICE, REDWOOD SCIENCES LAB

The U.S. Forest Service's Pacific Southwest Research Station in Arcata, California (aka Redwood Sciences Lab) collected temperature data at one site on Hayfork Creek (above Shiell Gulch) for 2008-2010. No coordinates were provided, just the written description "Gage located approximately 400 m upstream of weir at Shiell Gulch camp/picnic ground." For 2008 and most of 2009 the RSL temperature data match exactly (rounded to the nearest 0.01 °C) a site named "Hayfork_H2O_temp" in USFS AqS, so we assumed these were the same site and same data. AqS does not include the data for 10/21/2009-7/28/2010. Riverbend Sciences compiled all data but marked the 2008 data as overlap.

2.1.9 GRAHAM MATTHEWS AND ASSOCIATES

Graham Matthews and Associates monitored temperatures at two sites on Big Creek near Hayfork during 2007 and 2008 (WRTC 2008). Riverbend Sciences was only able to obtain a subset of the data at both sites (May-December at Hwy 3 and May-September at Road 324). The graphs in the appendices to WRTC (2008) show additional data were also collected in January-May 2007 and December 2007 through June 2008, but the original electronic files appear to be lost.

[9] http://www.timberproducts.com/About_Us/

2.1.10 ADDITIONAL DATASETS NOT ACQUIRED

During the outreach and research over the course of this project, Riverbend Sciences became aware of some datasets for which we were not able to obtain the original electronic data. These included:

- California Department of Fish and Game (CDFG) weirs on Hayfork Creek at Bar 717 Ranch (8 km upstream from its confluence with the SFTR) and the mainstem SFTR at Forest Glen Campground (river kilometer 89.5), Gate Weir (river kilometer 31.7), and Sandy Bar Weir (river kilometer 2.4). According to CDFG (1994), temperatures were only monitored during the season of weir operation (late spring and early summer). Graphs of a small subset of the data are available in CDFG (1994). Years include at least 1992 and likely others as well.
- As noted in section 2.1.9 above, some of the Graham Matthews and Associates data from Big Creek has been lost and we were not able to obtain it.
- As noted in section 2.1.6 above, the California Department of Fish and Wildlife was not able to provide the data for five sites on the mainstem SFTR for 2015.

Due to time and budget constraints, as well as a focus on streams which have the potential to provide summer rearing habitat for juvenile coho salmon, historical data available in the U.S. Geological Survey's (USGS) National Water Information System (NWIS) [10] were not utilized in this project. These data include 1965-1982 temperature data at gage # 11528700 on the SFTR below Hyampom [11] and perhaps additional gage sites as well (Riverbend Sciences did not evaluate the availability of data at other sites).

[10] http://waterdata.usgs.gov/nwis
[11] http://waterdata.usgs.gov/ca/nwis/dv/?site_no=11528700

2.2 QUALITY CONTROL AND CLEANING OF STREAM TEMPERATURE DATA

Data collected with continuous probes, such as the temperature data that is the subject of this project, must be cleaned/trimmed to remove data corrupted when a probe malfunctions or is exposed to air during pre/post deployment or when a stream dries up. The condition of the datasets Riverbend Sciences received varied among data sources and year, so we conducted a fairly intensive screening and trimming process informed by protocols from Dunham et al. (2005), Sowder and Steel (2012), and Stamp et al. (2014). This was a time-consuming process due to the extremely large dataset (897 site-years).

Air temperature data is very useful for informing the cleaning of water temperature data (Sowder and Steel 2012). Riverbend Sciences obtained air temperature data for 1997-2015 from the U.S. Forest Service remote automated weather station (RAWS) at Hayfork (site code CHAY), available online from the Western Regional Climate Center[12]. Some of water temperature datasets used in this project also included air temperature for a few sites and years; however, for the sake of consistency and efficiency, we used the Hayfork RAWS air temperatures instead.

Riverbend Sciences created and reviewed a series of graphs for each year and site. These graphs included: 1) overlay of 7-day average temperature data at all sites within a single year and source entity (Figure 5), 2) hourly water temperature overlaid on the hourly Hayfork air temperature, 3) multi-panel comparison of hourly temperature data at all sites within a single year and source entity (Figure 6), and 4) comparison of hourly temperature data at a single site between years (Figure 7). A complete set of graphs illustrating the final fully cleaned data is available as Electronic Appendix 2a.

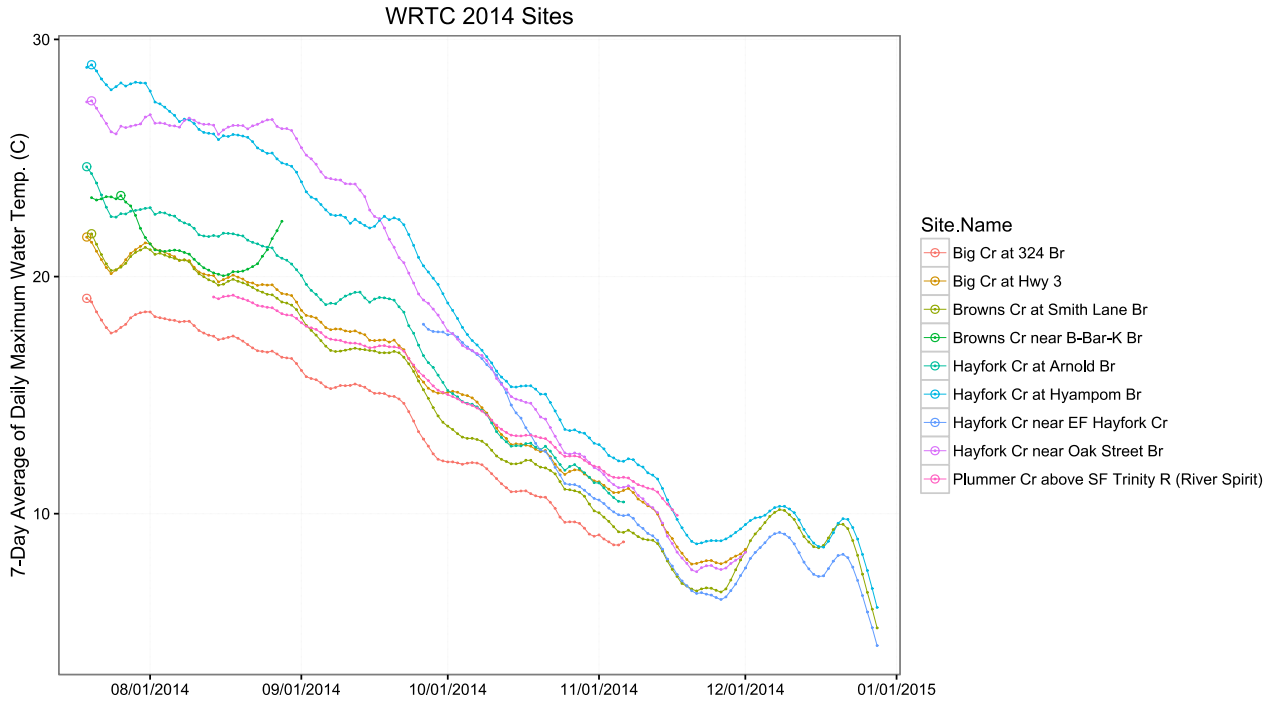

Figure 5. Example data quality assessment graph comparing 7-day average of daily maximum water temperatures at all sites monitored by the Watershed Research and Training Center (WRTC) in 2014. The large circles indicate MWMT values.

[12] http://raws.dri.edu/cgi-bin/rawMAIN.pl?caCHAY

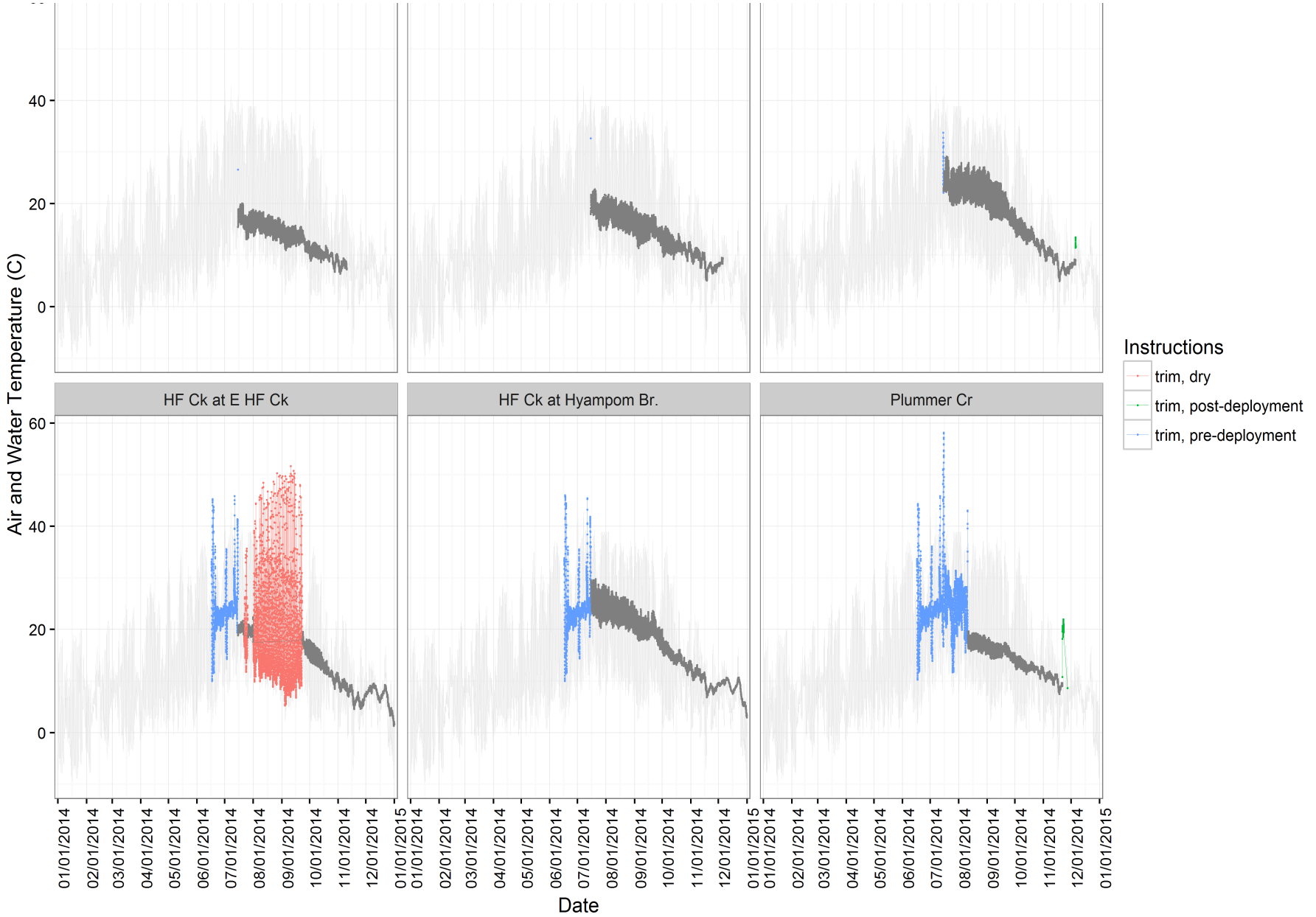

Figure 6. Example data quality assessment graph comparing Hayfork air temperatures with hourly water temperature data at all sites monitored by the Watershed Research and Training Center (WRTC) in 2015. The points in blue, green, and orange indicate pre-deployment data, post-deployment data, or when streams went dry, respectively, and were trimmed. Light grey in background is Hayfork air temperatures.

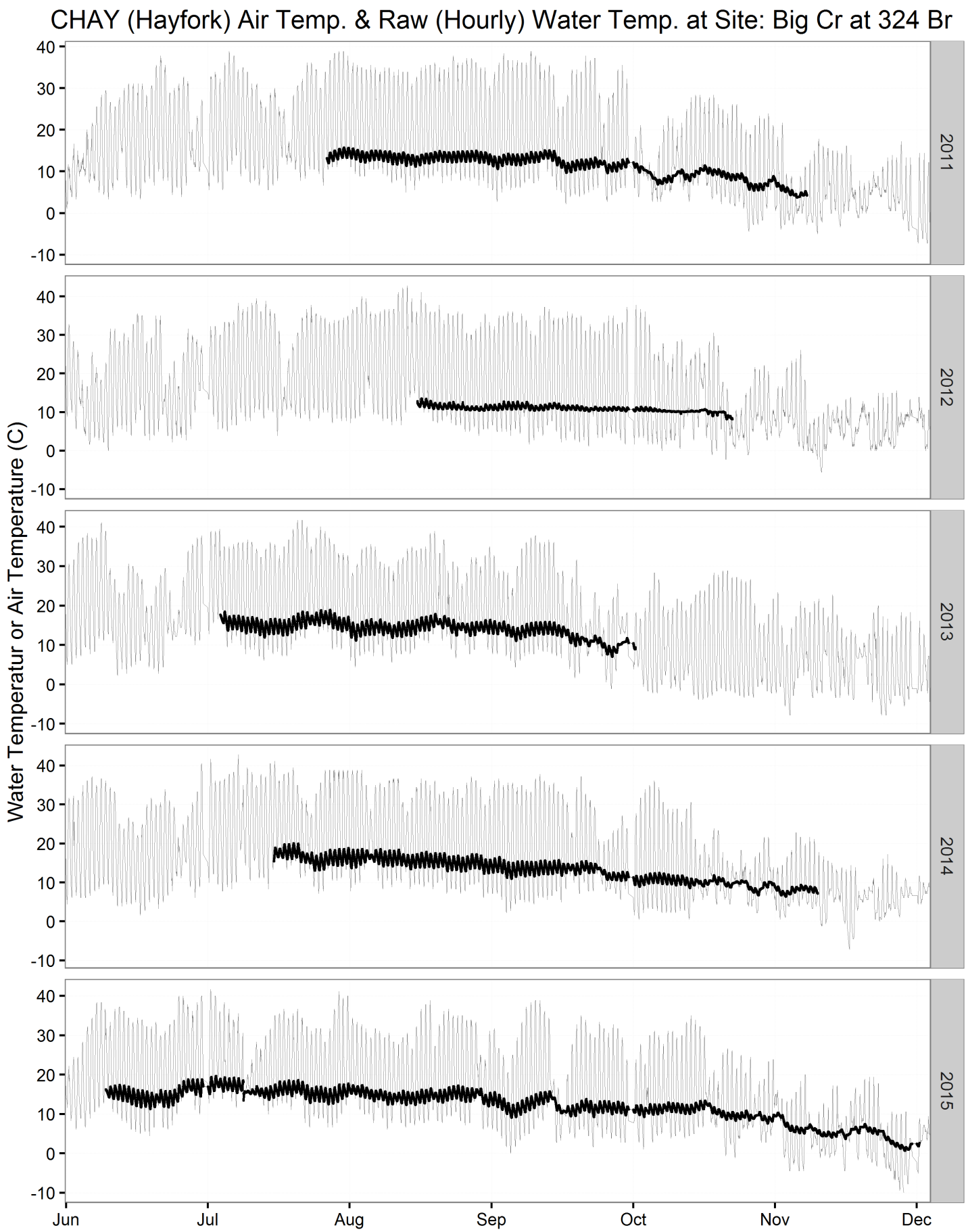

Figure 7. Example data quality assessment graph comparing hourly water temperature data at a single site (Big Creek at 324 Br) and Hayfork air temperatures across all years.

2.3 ASSIGNING STREAM TEMPERATURE MONITORING SITES TO STREAM NETWORK GIS REACHES

All stream temperature datasets had x-y spatial coordinates (e.g., UTM or latitude/longitude) when Riverbend Sciences acquired them; however, assigning each site to a GIS stream network (rather than solely x-y coordinates) greatly increases the utility of the data. The National Stream Internet (NSI) Hydrography Network[13] was selected as the GIS stream network due to its use in the NorWeST model. NSI network was created by the U.S. Forest Service's Rocky Mountain Research Lab by modifying the NHD-Plus[14] Version 2 medium-resolution (1:100,000-scale) hydrography layer for all streams in the contiguous United States. NHD-plus contains a large database of descriptors for each reach (e.g., stream name, watershed area, stream gradient, climate variables, and percent of various land-use types within the watershed) which are useful predictor variables in spatial analyses. Assigning the SFTR temperature monitoring points to NSI/NHD-plus stream reaches will allow the data to be easily integrated into NorWeST and other stream network models.

An added benefit of assigning points to the NSI/NHD-plus network is the ability to group nearby sites together for analysis. Each tributary junction along a stream defines the start and end point of a reach. Each stream reach in NSI/NHD-plus has a unique identifier called "COMID" (i.e., common identifier). Once temperature monitoring points are assigned to an NSI/NHD-plus reach, then sites sharing that reach (i.e., share a COMID) can be grouped together for trend analysis (Figure 8). Due to their spatial proximity, data from these sites are comparable and can be analyzed together (Figure 9). In some analyses, we lump all sites within a reach together. We acknowledge that this lumping can mask important differences between sites; however, it makes spatial patterns much easier to visualize on maps at large scales. For reaches with temperature data in the SFTR watershed, mean length is 2.4 km, standard deviation is 1.5 km, minimum is 0.4 km, and maximum is 8.9 km.

The assignment of temperature monitoring sites to the NSI/NHD-plus GIS stream network was performed by WRTC GIS specialist Marie Buell. Details are provided in Appendix C.

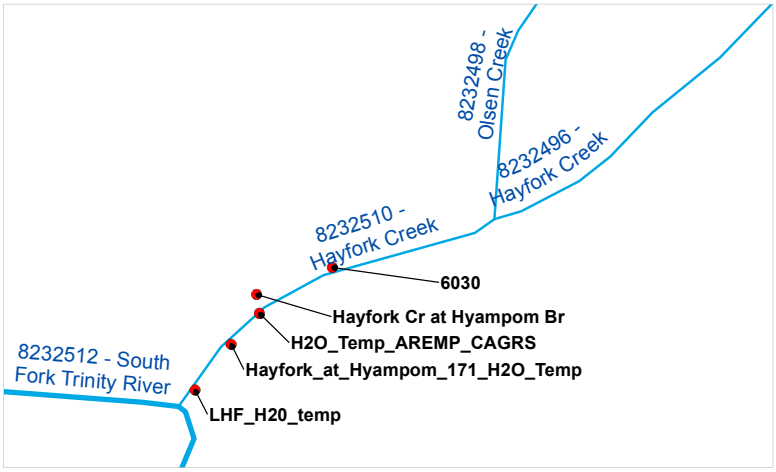

Figure 8. Map showing the locations of temperature monitoring sites on Hayfork Creek that are located on the NSI/NHD-plus stream reach COMID 8232510, which spans between Olsen Creek and the South Fork Trinity River. Sites are labelled by Site Name.

[13] http://www.fs.fed.us/rm/boise/AWAE/projects/NationalStreamInternet/NSI_network.html
[14] http://www.horizon-systems.com/nhdplus/NHDPlusV2_home.php

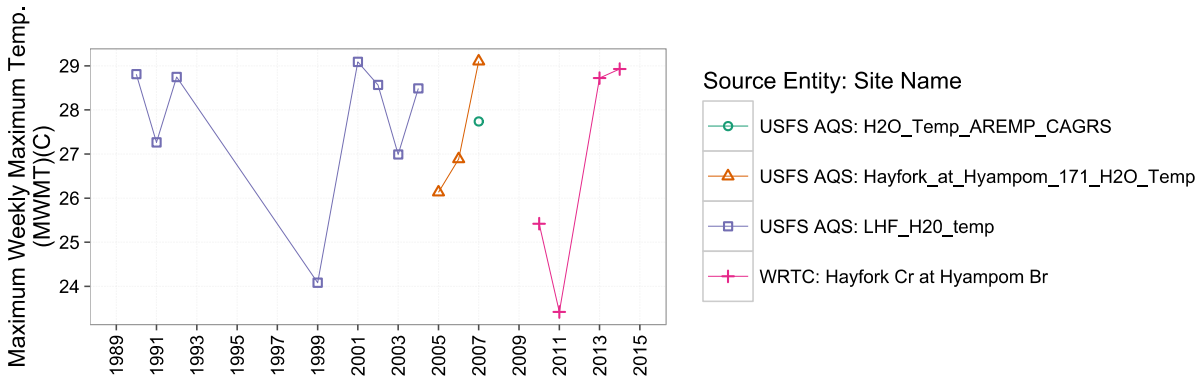

Figure 9. Chart of MWMTs for four nearby temperature monitoring stations on Hayfork Creek, all located on the NSI/NHD-plus stream reach COMID 8232510, which spans between Olsen Creek and the South Fork Trinity River. Site 6030 is not shown because it overlapped with site LHF_H20_temp.

2.4 DETERMINING WHICH SITES ARE POTENTIALLY ACCESSIBLE TO ANADROMOUS SALMONIDS

Most water temperature monitoring sites are located in stream reaches that are accessible to anadromous salmonids; however, some sites in smaller headwater streams are monitored to study amphibians and macroinvertebrates or to evaluate the effect of forest management on stream temperatures. These small headwater stream monitoring sites are also useful for determining how headwater conditions affect occupied habitats downstream (i.e., provide thermal refugia). Since the primary purpose of this analysis is to understand temperature conditions for anadromous salmonids, Riverbend Sciences differentiated anadromously accessible vs. inaccessible streams using two GIS datasets from the California Department of Fish and Wildlife. The first is winter steelhead distribution (CDFW 2012b) and the second is the California Fish Passage Assessment database (PAD) (CDFW 2015). Steelhead have a more extensive distribution than any other anadromous fish within the SFTR watershed, so their distribution is a conservative overlay for encompassing areas with potential coho salmon habitat. In ArcGIS, the Select by Location tool was used to select and mark all stream temperature monitoring sites located within 30 meters of winter steelhead distribution, and then manual reviews and corrections were applied to designations as needed[15]. We queried the PAD to extract only the most downstream "Natural Total Barrier" on each stream, because additional upstream total barriers are irrelevant once passage is blocked by a total barrier downstream, and because maps are less cluttered when viewing just one barrier per stream. We then manually reviewed each temperature monitoring site and designated whether it was upstream of a barrier. In many cases, the steelhead distribution extends upstream of where the PAD indicates there is a total natural barrier, because CDFW has not compared the two datasets to each other[16]. We only designated sites as accessible

[15] For example, due to inaccuracies in spatial coordinates, some sites plotted more than 30 meters from a stream but were in reality located on a steelhead-bearing reach.

[16] Excerpts from CDFG (2012b) metadata: "This dataset depicts observation-based stream-level geographic distribution of anadromous winter-run steelhead trout, *Oncorhynchus mykiss irideus* (*O. mykiss*), in California." "The distributions reported in this dataset were derived from a subset of the data contained in the Aquatic Species Observation Database (ASOD)…" "The distribution dataset was built solely from the ASOD observational data. No additional data (habitat mapping, barriers data, gradient modeling, etc.) were utilized to either add to or validate the data. It is very possible that an anadromous observation in this dataset has been recorded above (upstream of) a barrier as identified in the Passage Assessment Database (PAD). In the near future, we hope to perform a

to anadromous fish if it was listed in the steelhead distribution and also did not have a downstream total natural barrier in the PAD. There are anthropogenic barriers (i.e., culverts and diversions) in the SFTR watershed but these were not included in this analysis, because they are potentially remediable and part of the purpose of this analysis is to inform development of future fish passage projects.

2.5 CALCULATION OF DAILY AND SEASONAL SUMMARIES

2.5.1 DAILY SUMMARY STATISTICS

The vast majority of the data were acquired at their original temporal resolution, which ranged from 15 to 120 minutes. For each site, daily statistics were calculated when data completeness was at least 80% (e.g., for data with temporal resolution of 30 minutes, 38 out of 48 individual measurements must be present). Daily statistics included number of measurements, minimum, maximum, mean, and range. All metrics were calculated using R (R Core Team 2012).

2.5.2 INITIAL CALCULATION OF SEASONAL AND MONTHLY SUMMARY STATISTICS

Key seasonal temperature metrics were selected based on a review of previous stream temperature analyses (Lewis et al. 2000, Welsh et al. 2001, Dunham et al. 2005, Isaak et al. 2010, McCullough 2010) and calculated for each site and year, including:

- *Maximum Daily Maximum Temperature (MDMT)* – The highest instantaneous maximum temperature recorded during the summer (Figure 10).
- *Maximum Weekly Maximum Temperature (MWMT)* – The highest seven-day average of the daily average temperature. In simple terms, it is the average temperature during the warmest seven-day period of the year. Steps for calculation (Figure 10):
    - Step 1. Calculate maximum temperature for each day.
    - Step 2. Calculate 7-Day Average of the Daily Maximum (7DADM), which is calculated for each day as the average of the daily maximum temperature (Step 1) for the three prior days, the current day, and three following days.
    - Step 3. Select highest 7DADM (Step 2) value of the year.
- *Maximum Weekly Average Temperature (MWAT)* – The highest seven-day moving average of the daily maximum temperatures. In simple terms, it is the average daily maximum temperature during the warmest seven-day period of the year. Steps for calculation (Figure 10):
    - Step 1. Calculate mean temperature for each day.
    - Step 2. Calculate 7-Day Average of the Daily Average (7DADA), which is calculated for each day as the average of the daily mean temperature (Step 1) for the three prior days, the current day, and three 3 following.
    - Step 3. Select highest 7DADA (Step 2) value of the year.

comparative analysis between this dataset and the PAD to identify and resolve all such discrepancies. Such an analysis will add rigor to and help validate both datasets."

- *Mean August temperature (Aug_mean)* – Metric used in the NorWeST model because August is often the warmest month in snowmelt-dominated streams. Metric only calculated when data available for 90% (28 of 31) of days.

Summer temperature metrics are all highly correlated with each other (Dunham et al. 2005), including within streams in the SFTR watershed (see section 3.1). All four statistics were calculated and included in report appendices, but for the sake of simplicity the main text and figures in the report focus almost solely on MWMT.

The date of occurrence of MDMT, MWMT, and MWAT was also calculated. In cases where the same maximal value was reached on more than one date, the seasonal statistic date was assigned to the date on which a larger number of sites had the maximal value[17].

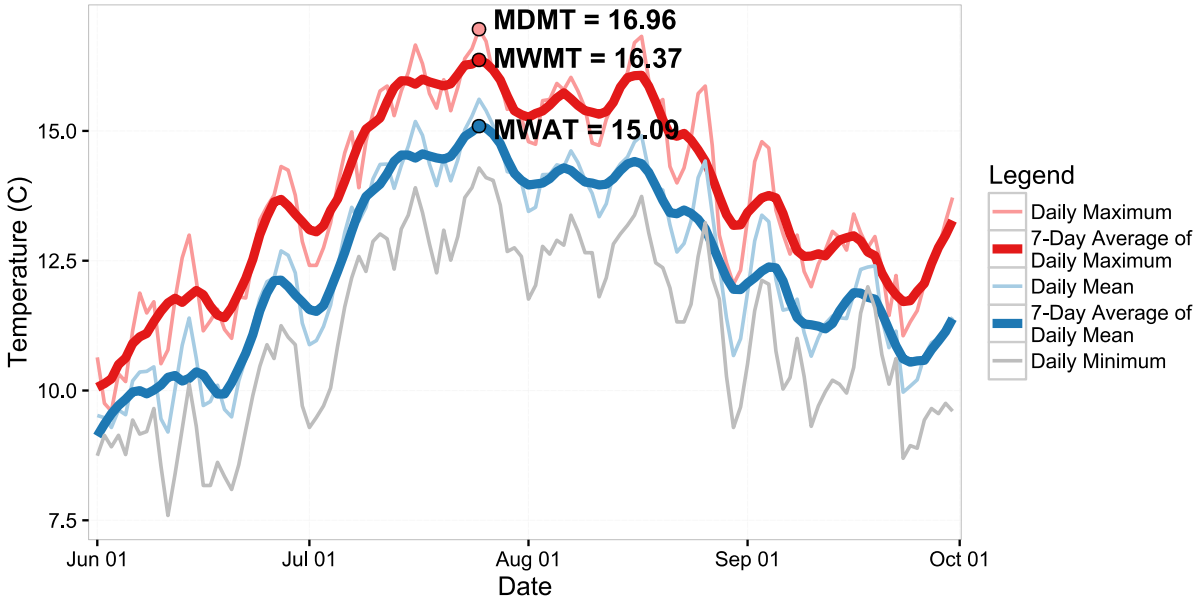

Figure 10. Daily time series of daily maximum, daily mean, daily minimum, 7-day average of daily mean, and 7-day average of daily maximum, MDMT, MWMT, and MWAT at an example site (Plummer Creek above South Fork Trinity River for 2010). MDMT, MWMT, and MWAT are the highest annual values for daily maximum, 7-day average of daily mean, and 7-day average of daily maximum, respectively.

2.5.3 REFINING SEASONAL STATISTICS ACCORDING TO DATA COMPLETENESS

Seasonal summary statistics are relatively simple to calculate when data are available for the entire warm season (i.e., June through September); however, many datasets only contained data for part of the summer season. Seasonal statistics may be biased low if they are calculated from only a short period and did not include the warmest days of the year. Conversely, excluding seasonal statistics when gaps occurred outside the warmest days would be an unnecessary loss of important information. As described in Section 2.5.2, seasonal statistics were initially calculated for all years and sites. Values were then either retained (i.e., kept) or excluded (i.e., deleted) based on data completeness.

[17] Potential alternatives would be to randomly choose one of the dates, or to assign the mean date, but in cases where long distances separate the occurrence of maximal values, then the mean date might be during a cool period. For example, if maximal values are reached on July 1 and July 30, then the mean date would be July 16.

We developed an automated multi-step procedure to screen data completeness followed by an optional manual override. Since MWMT, MWAT, and MDMT almost always occur in July or August (see section 3.1), seasonal statistics were retained[18] for datasets which included all of July and August[19]. For datasets that were missing some days in July or August, seasonal statistics were only automatically retained if the data were present at that site for each day on which that statistic occurred at least two other sites[20]. Finally, I reviewed graphs for each source entity and year (similar to Figure 5 but with each site a separate panel rather than all sites plotted into a single panel) and if the data gaps did not appear to substantially affect the summary statistic (i.e., if data at nearby sites indicated the period with data present had similar values to the period with missing data) then I retained the value using a manual override.

2.6 SELECTING TEMPERATURE CATEGORIES FOR THE SFTR WATERSHED BASED ON SUITABILITY FOR SALMONIDS

High summer water temperatures in the SFTR watershed have been identified as a limiting factor for steelhead trout, spring-run Chinook salmon, and coho salmon. High summer water temperature can cause mortality if it reaches critically lethal levels or can have chronic detrimental effects on bioenergetics and growth. Of the three species, coho salmon have the most stringent requirements for cool water and are the focus of this section.

Selecting "salmonid suitability" thresholds is extremely difficult due to site-specific variation in natural stream systems. Recent reviews on this topic include U.S. EPA (2003), Richter and Kolmes (2005), McCullough (2010), Stenhouse et al. (2012), and Nichols et al. (2013). Approaches to setting thresholds include laboratory studies, bioenergetics modeling, field studies comparing fish distribution with observed temperatures, and observing movement of fish into thermal refugia. *The summary of information presented here is not intended to be a comprehensive literature review, but rather to provide enough information to inform selection of criteria that will be useful for differentiating categories of stream temperatures in the SFTR watershed and prioritizing areas where it may be feasible to restore coho salmon (Table 2).*

To successfully reproduce, anadromous salmonids must grow to become large enough to survive the transition to the ocean environment. Growth rates are determined by the relative balance of energy consumed versus energy expended, which are strongly affected by food and temperature, respectively (McCarthy et al. 2009, Weber et al. 2014). The growth optimum for juvenile coho with access to maximum food is 15.0 °C (Edsall et al. 1999) and bioenergetics modeling indicates coho most efficiently convert food into growth when daily average water temperatures range from 14.7°C to 15.7°C (Willey 2004). Metabolic demands are greater when fish are exposed to higher temperatures and faster water velocities, requiring greater food resources to compensate (Weber et al. 2014). In the Mattole River, a coastal watershed southwest of the SFTR that lacks those favorable features, juvenile coho salmon were not found in streams where MWMT exceeded 18 °C (Welsh et al. 2001) but were present in all streams where MWMT was less than 16.3°C. In streams with extremely rich food resources, such as streams recovering from the Mount St. Helens eruption (Bisson et al. 1988) or the spring-fed streams in the Shasta Valley northeast of the SFTR (Nichols et al. 2013), coho salmon can grow rapidly and thrive even when

[18] Seasonal statistics were initially calculated for all years and sites. Values were then either retained (i.e., kept) or excluded (i.e. deleted) based on data completeness

[19] Actually June 28 through September 2 because the 7-Day Average of the Daily Maximum (7DADM) and 7-Day Average of the Daily Average (7DADA) require data to be present for three days before and three days after.

[20] I chose two sites as the threshold rather than one site because a single site might have unique characteristics or a data quality issue whereas two or more sites should indicate a more widespread pattern.

MWMT exceeds 18 °C. In the West Fork Smith River on the Oregon Coast[21], Ebersole et al. (2009) found reduced densities of coho salmon juveniles at sites with MWMT values >20 °C.

Another set of information to consider when selecting temperature thresholds are observations of movement of fish between thermal refugia and mainstem rivers. For example, multiple studies on the Klamath River found that juvenile salmonids congregated in thermal refugia at tributary confluences when mainstem temperatures reached approximately 22-23 °C (Sutton et al. 2007, Strange 2010, Sutton and Soto 2012, Brewitt and Danner 2014). In the West Fork Smith River, Raskauskas (2005) found coho salmon moved into thermal refugia when temperature exceeded 20 °C.

Steelhead/rainbow trout can tolerate warmer water than coho salmon (Richter and Kolmes 2005, McCullough 2010, Parkinson et al. 2015). For example, in Southern California streams, juvenile steelhead/rainbow trout have been documented successfully oversummering in pools reaching daily maximum temperatures greater than 30 °C (Sloat and Osterback 2013), whereas the Ultimate Upper Incipient Lethal Temperature (UUILT)[22] for coho salmon is 25.0 °C (Brett 1952). At temperatures greater than approximately 24 °C, time spent by steelhead/rainbow trout on feeding and agonistic behaviors declines (Sloat and Osterback 2013). Based on a review of previous studies, Boughton et al. (2015) characterized days with daily maximum temperatures greater than 21°C as "stressful" in a bioenergetics model of steelhead/rainbow trout. In biological surveys of 49 interior Canadian streams, abundance of rainbow trout was lower (but remained above zero) for streams with MWAT greater than approximately 21 °C (Parkinson et al. 2015). A steelhead/rainbow trout bioenergetics model calibrated with field data from nine low-order tributaries of the SFTR watershed indicated that growth declined precipitously when temperatures exceeded 20 °C, and that feeding rate and temperature limit the growth and productivity (McCarthy et al. 2009).

Table 2. Categories for evaluating the suitability of water temperatures to supporting salmonids in streams in the South Fork Trinity River watershed. MWMT = maximum weekly maximum temperature (i.e., highest value of the year for 7-day moving average of daily maximum temperatures).

MWMT (°C)	Category	Explanation
<16	Excellent	Optimal for coho salmon and steelhead/rainbow trout
16-18	Very good	Likely suitable for coho salmon and steelhead/rainbow trout
18-20	Good	Possibly suitable for coho salmon if abundant food resources and velocity refuge are present. Likely suitable for steelhead/rainbow trout.
20-22	Fair	Unsuitable for coho salmon. Likely suitable for steelhead/rainbow trout.
22-25	Poor	Marginal for steelhead/rainbow trout
>25	Very poor	Very marginal for steelhead/rainbow trout

[21] Not to be confused with the Smith River in northwest California and Southwest Oregon.
[22] According to McCullough (2010), Ultimate Upper Incipient Lethal Temperature (UUILT) "is the highest UILT possible under conditions where organisms with prior temperature acclimation are then subjected to a test temperature for a period of either 1000 min or 24 h, producing 50% survival."

3 RESULTS AND DISCUSSION

3.1 OVERALL SEASONAL PATTERNS IN STREAM TEMPERATURE AND RELATIONSHIPS BETWEEN TEMPERATURE METRICS

Stream temperatures in the SFTR watershed typically peak in July or August (Figure 11). Averaged across all years and sites, the peak occurs in late July (Figure 11). On average, July is slightly warmer than August but much warmer than June (Figure 13). There is considerable year-to-year (and to a lesser extent, site-to-site) variation in the date that peak temperatures occur (Figure 12). MWMT temperatures occurred earlier in 2015 than in any other year (Figure 12).

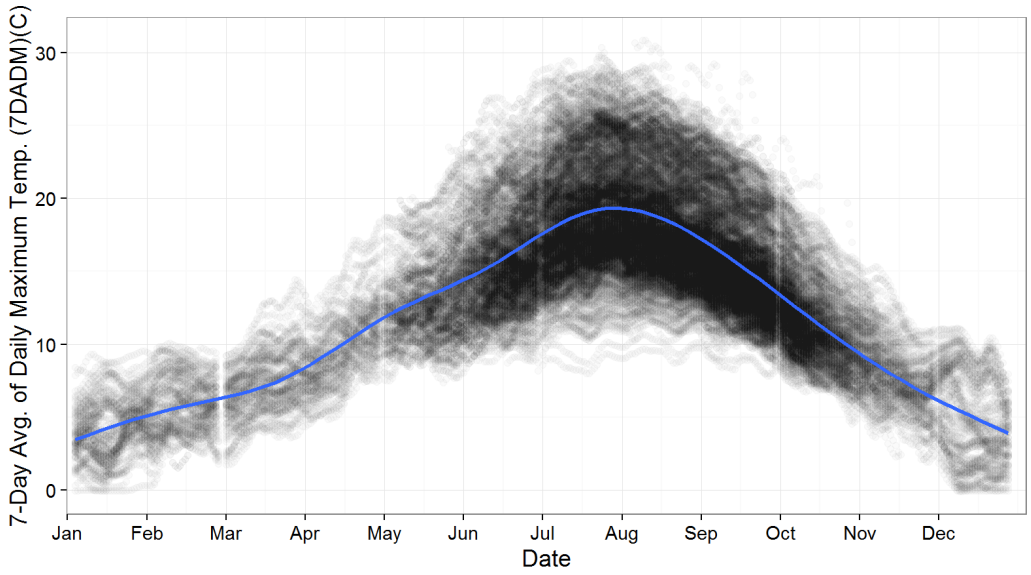

Figure 11. Seven-day moving averages of daily maximum temperature (7DADM) for every site and every year in the SFTR watershed. Blue line is a LOESS (LOcally Estimated Scatterplot Smoother) smoother.

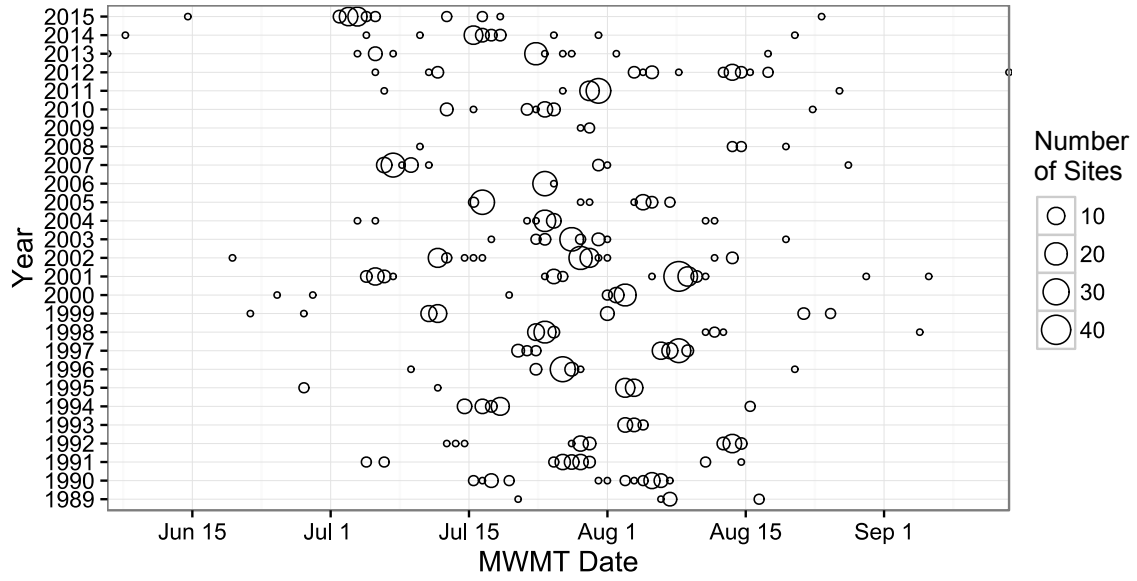

Figure 12. Date each year 1989-2015 upon which MWMT temperature occurred at sites in the SFTR watershed. Size of circles corresponds to the number of sites.

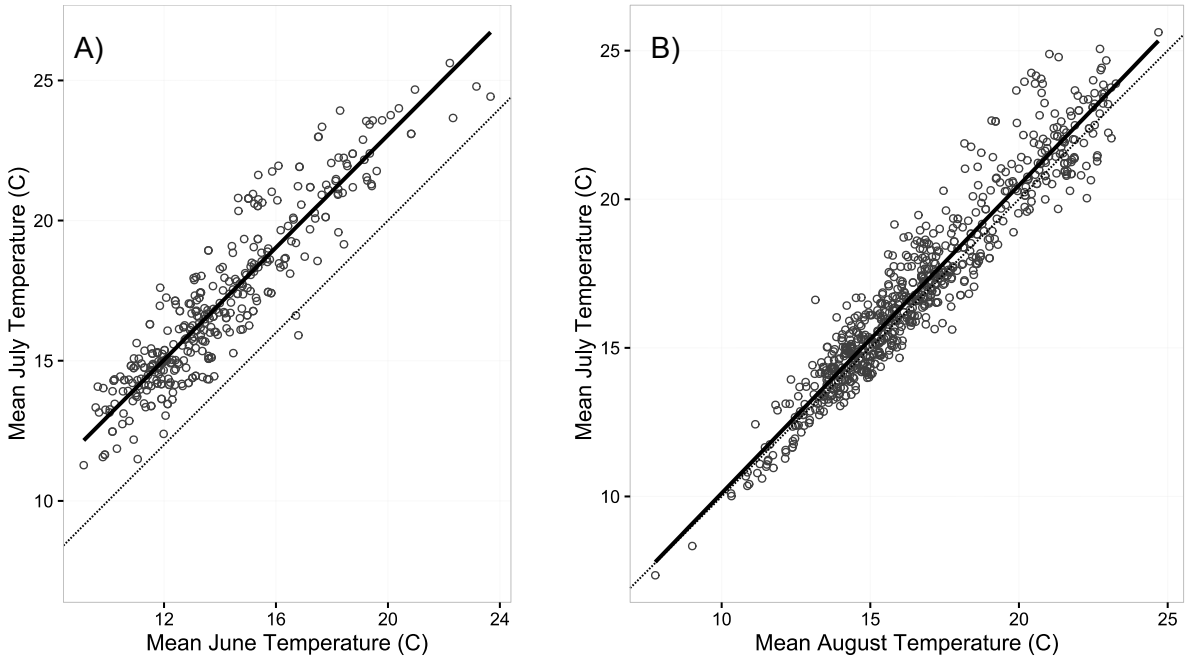

Figure 13. Comparison of mean July stream temperatures with (A) mean June stream temperatures, and (B) mean August stream temperatures, for the entire SFTR watershed dataset. Each dot represents a single site and year. The thick solid line is a linear regression and the thin dotted line is the 1:1 (Y=X) line.

Maximum weekly maximum temperature (MWMT), maximum weekly average temperature (MWAT), annual single maximum (MDMT), and August mean (Aug_mean) temperatures for the entire SFTR watershed dataset are all highly correlated (Figure 13). The strongest correlation is between MWMT and MDMT, with a Pearson Correlation Coefficient of 0.997 (Figure 13).

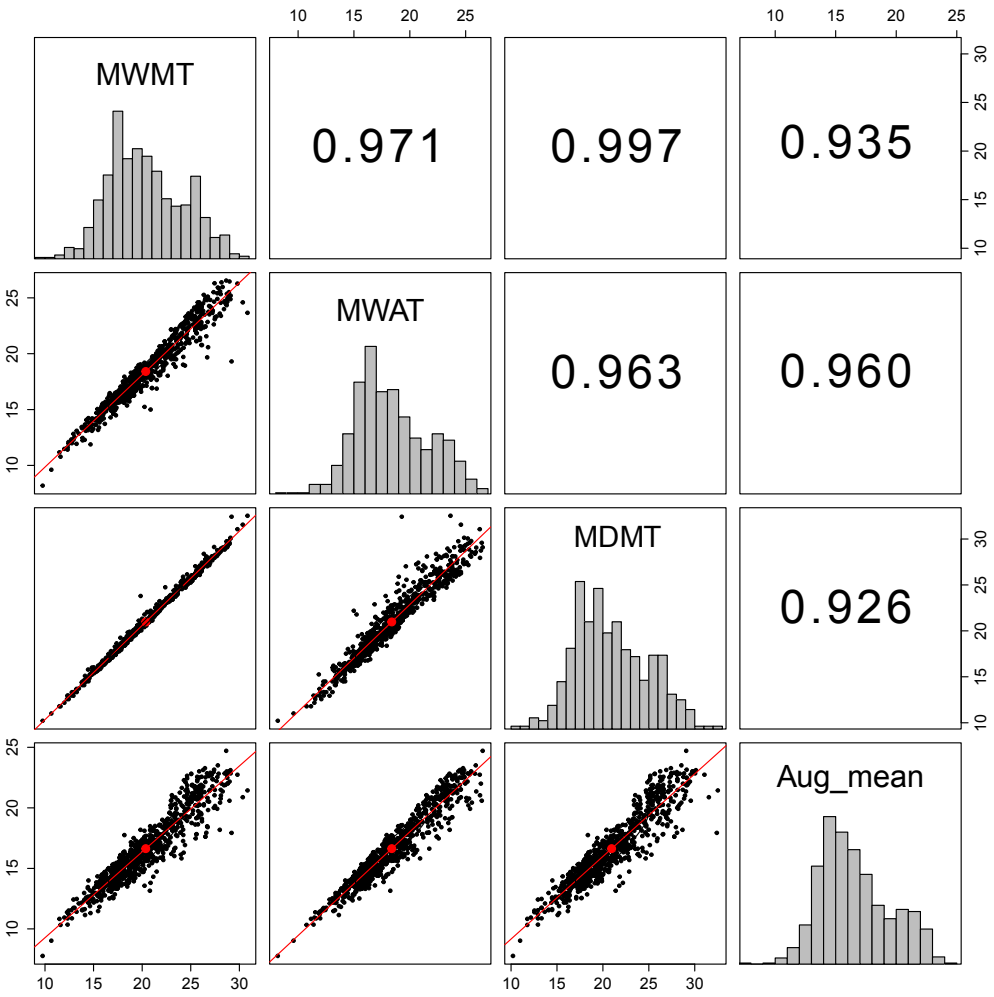

Figure 14. Correlation matrix comparing maximum weekly maximum temperature (MWMT), maximum weekly average temperature (MWAT), annual single maximum (MDMT), and August mean (Aug_mean) temperatures for the entire SFTR watershed dataset. The matrix includes a row and column for each variable, and the intersection of a row and column shows the correlation between a pair of variables. For example, the left column of the bottom row is a plot of MWMT vs. Aug_mean with linear trend line shown in red and each dot representing a single site and year, and the number (0.935) in the right column of the upper row is the Pearson Correlation Coefficient[23] between MWMT and Aug_mean. Grey bars along the symmetrical axis of the matrix are histograms showing the distribution of data for each variable.

3.2 INTER-ANNUAL VARIATION IN STREAM TEMPERATURE

Given that the network of sites monitored varied each year, care must be taken when making watershed-wide generalizations about "cool" vs. "warm" years. Riverbend Sciences developed an approximate index of cool vs. warm years based on the MWMT relative anomaly (i.e., ratio of MWMT for individual years to the mean MWMT calculated from all years), calculated as follows. First, using only those sites with at least five years of data, we calculated each site's mean MWMT. For example, the WRTC site at Big Creek at Highway 3 has six years of MWMT

[23] 1.000 would indicate a perfect positive correlation between the variables while zero would indicate a complete lack of relationship between the two variables

values, with a mean value of 21.12 °C (Table 3). For each site, we then divided the MWMT for each year by the mean MWMT (Table 3). The result is the relative anomaly, a unitless ratio which can then be averaged across all sites within a year, allowing relatively "apples-to-apples" comparisons of the general warmth of each year (Figure 15). The five warmest years (listed in order of warmth) were 2015, 2006, 2014, 2009, and 1994, and the five coolest years were 1993 (very few stations that year), 2011, 1999, 1989, and 2012 (Figure 16). Appendix E presents a sensitivity analysis which shows that the results (i.e., warm vs. cool years) for MWAT are quite similar to MWMT and that it makes relatively little difference whether five or ten years of data are used as a minimum threshold.

Table 3. Example calculation of a single site's mean MWMT and relative MWMT anomaly for each year. The relative MWMT anomaly is the ratio of each year's MWMT to the mean MWMT.

Site	Year	MWMT (°C)	Relative MWMT Anomaly
Big Creek at Hwy 3	2010	20.53	0.972
Big Creek at Hwy 3	2011	20.15	0.954
Big Creek at Hwy 3	2012	19.98	0.946
Big Creek at Hwy 3	2013	21.75	1.030
Big Creek at Hwy 3	2014	21.66	1.025
Big Creek at Hwy 3	2015	22.67	1.073
Big Creek at Hwy 3	Mean of all Years	21.12	1.000

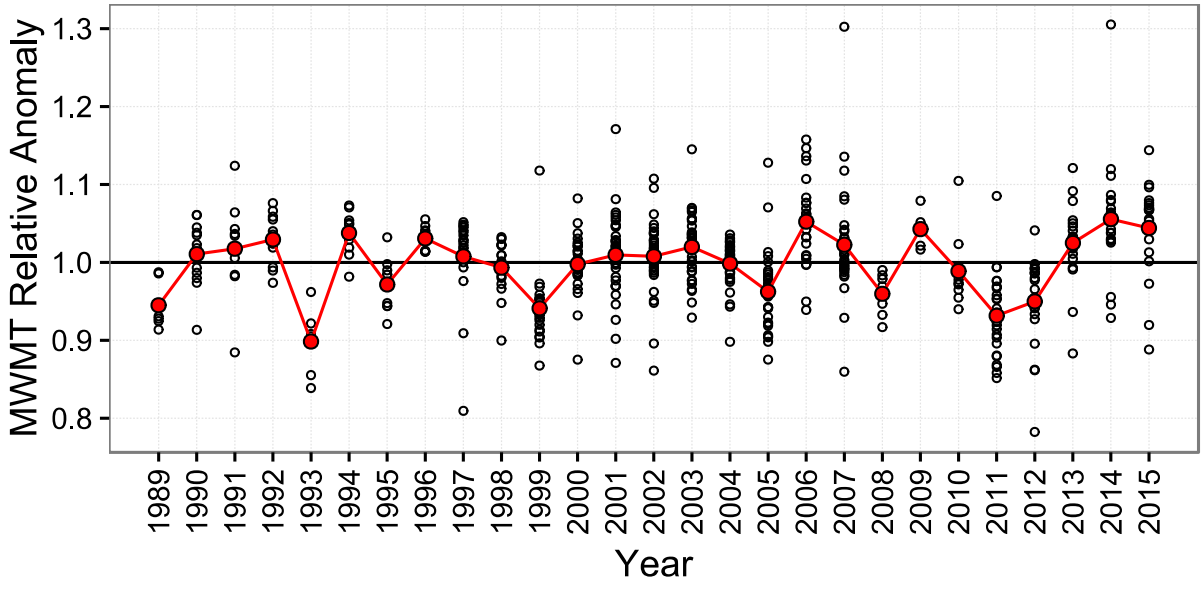

Figure 15. Annual time series of MWMT relative anomaly (i.e., ratio of a site-year's MWMT to a site's mean MWMT) for each site and year (black circles). Large red circles are the mean of all sites within a year. Warm years have relative anomalies greater than 1 while cool years have relative anomalies less than 1.

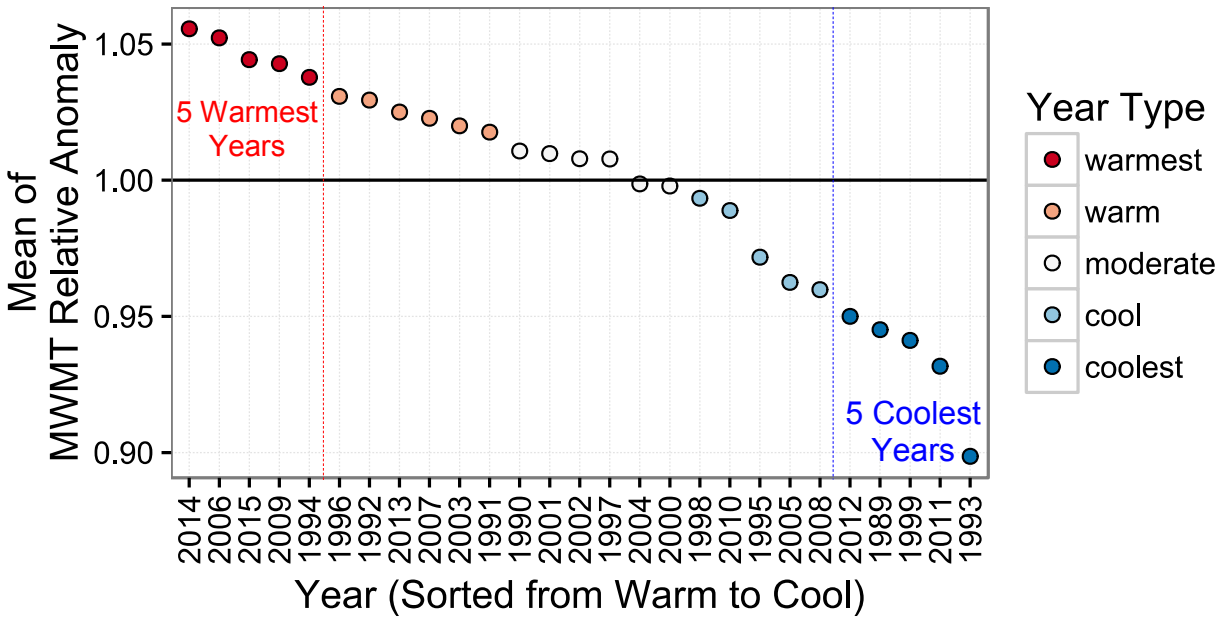

Figure 16. Mean of MWMT relative anomaly (i.e., mean ratio of a single-year MWMT to a mean MWMT) for each year 1989 to 2015, indicating generalized watershed-wide cool and warm years. X-axis is sorted in same order as y-axis. Points in this graph are the same as the red circles in Figure 15. Warm years have relative anomalies greater than 1 while cool years have relative anomalies less than 1.

3.3 SUMMARY OF SPATIAL PATTERNS IN STREAM TEMPERATURE

MWMT temperature is strongly correlated with drainage area (Figure 17), and most streams show the expected pattern of warming as water flows downstream from cold, well-shaded headwaters into wider alluvial channels which are more exposed to solar radiation (Figure 20). One exception is Hayfork Creek, which exhibits a more complex pattern where temperatures are highest in the creek's middle reaches within the Hayfork Valley where riparian canopy is poor and streamflow is depleted due to water diversions (Figure 17, Figure 20). Temperatures are then cooler within the lower Hayfork Creek Canyon, likely due to topographic shade, lack of stream diversions, and inflow from cooler tributaries. Hayfork Creek then warms again as it flows through Hyampom Valley before reaching its confluence with the South Fork Trinity River.

MWMT temperatures <18 °C and <20 °C occur primarily at sites with drainage areas less than 100 km^2 (Figure 18). Listed by watershed, sites with abnormally cold water relative to the drainage area include:

- *Lower Hayfork Creek subwatershed*: Miners Creek (sites "miners1_H2O_Temp", "Miners_H2O_temp", and "6001") and Bear Creek ("Bear_H2O_temp")
- *Middle Hayfork Creek subwatershed*: Little Creek (site "Little_H2O_temp"), upper Barker Creek (site "Barker_062_H2O_Temp"), and upper Big Creek (sites "Big Cr at 324 Br", "Big_H2O_temp", and "7016")
- *Upper Hayfork Creek subwatershed*: Goods Creek (site "GoodsCreek_H2O_Temp")
- *Lower SFTR subwatershed*: Madden Creek (sites "MADBRG_H2O_temp" and "Madden Cr at Br"),
- *Middle SFTR subwatershed*: lower Butter Creek (sites "Lower_Butter_H20_temp" and "ButterCr_at_McCaslin_H2O_Temp"),
- *Upper SFTR subwatershed*: Cable Creek ("TCB1") and Prospect Creek ("ProspectCr_H20_Temp")

Each subwatershed within the SFTR contained sites with a diverse range of temperatures; however, there are differences in the temperature distribution between watersheds (Figure 19, Figure 20). Tributaries in the Middle Hayfork Creek subwatershed have generally higher water temperatures than tributaries in the other watersheds (Figure 19). Relative to the other watersheds, Upper and Lower Hayfork have a greater percent of tributaries accessible to anadromous fish with MWMT temperatures likely suitable (<18 °C) for coho salmon. Mainstem temperatures were lowest in the headwaters of the Upper SFTR.

In addition to varying by reach and site, temperatures also vary by year. Figure 21 shows reach-level MWMT temperatures in coolest years only (1993, 2011, 1999, 1989, and 2012) and Figure 22 shows reach-level MWMT temperatures in the warmest years only (2015, 2006, 2014, 2009, and 1994). Appendix F provides a similarly formatted figure for the all-years mean of MWAT, with reaches labeled by the number of years of available data.

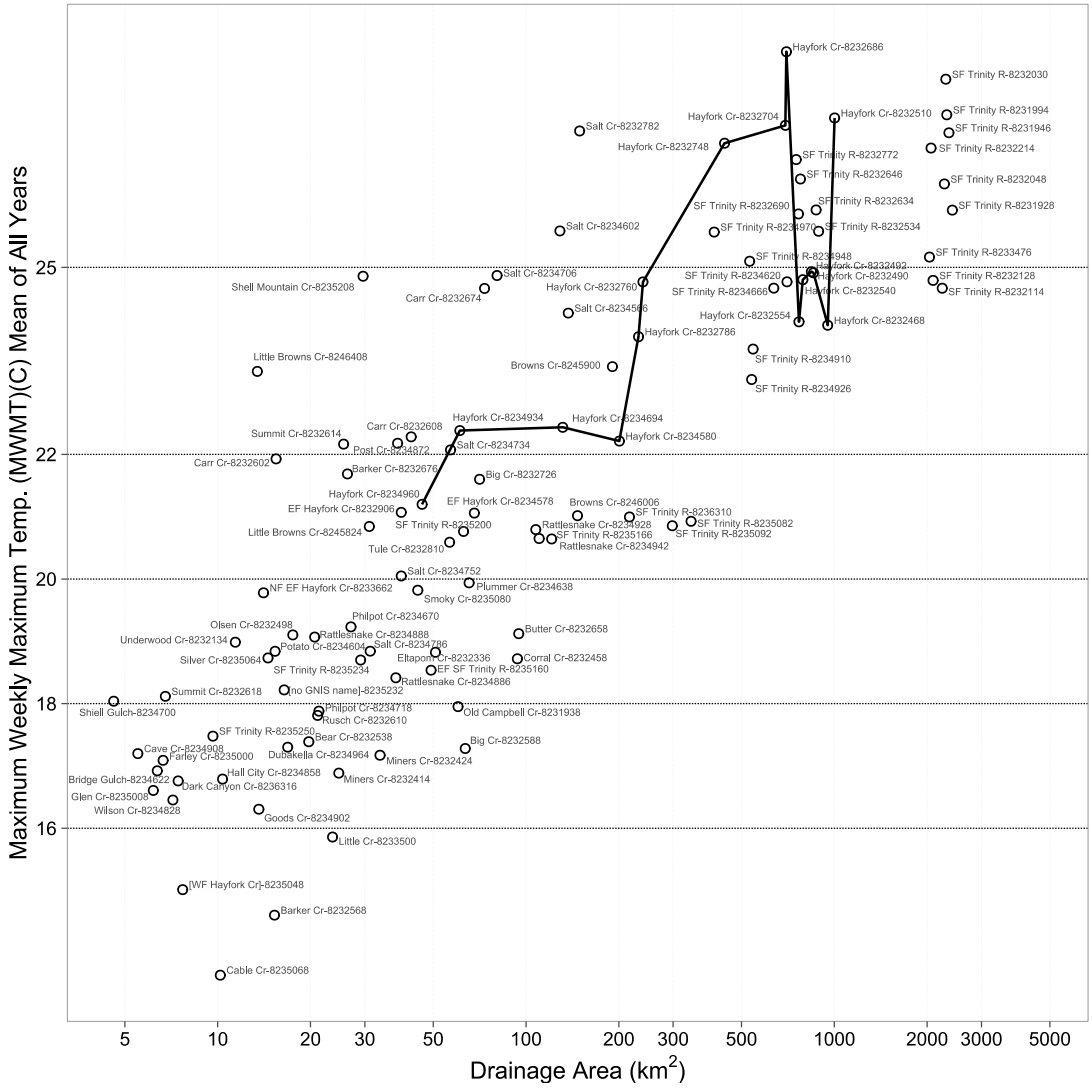

Figure 17. Mean MWMT temperature vs. drainage area (on log scale) for reaches accessible to anadromous fishes within the SFTR watershed. The black line follows reaches in Hayfork Creek. Mean reach MWMT values were calculated as the mean of all MWMTs across all years (1989-2015) and sites within a reach. Horizontal gridlines correspond to the MWMT salmonid suitability categories in Table 2. Reaches are labelled by an abbreviated version of official stream name (U.S. Geological Survey Geographic Names Information System, GNIS) and reach identifier (COMID).

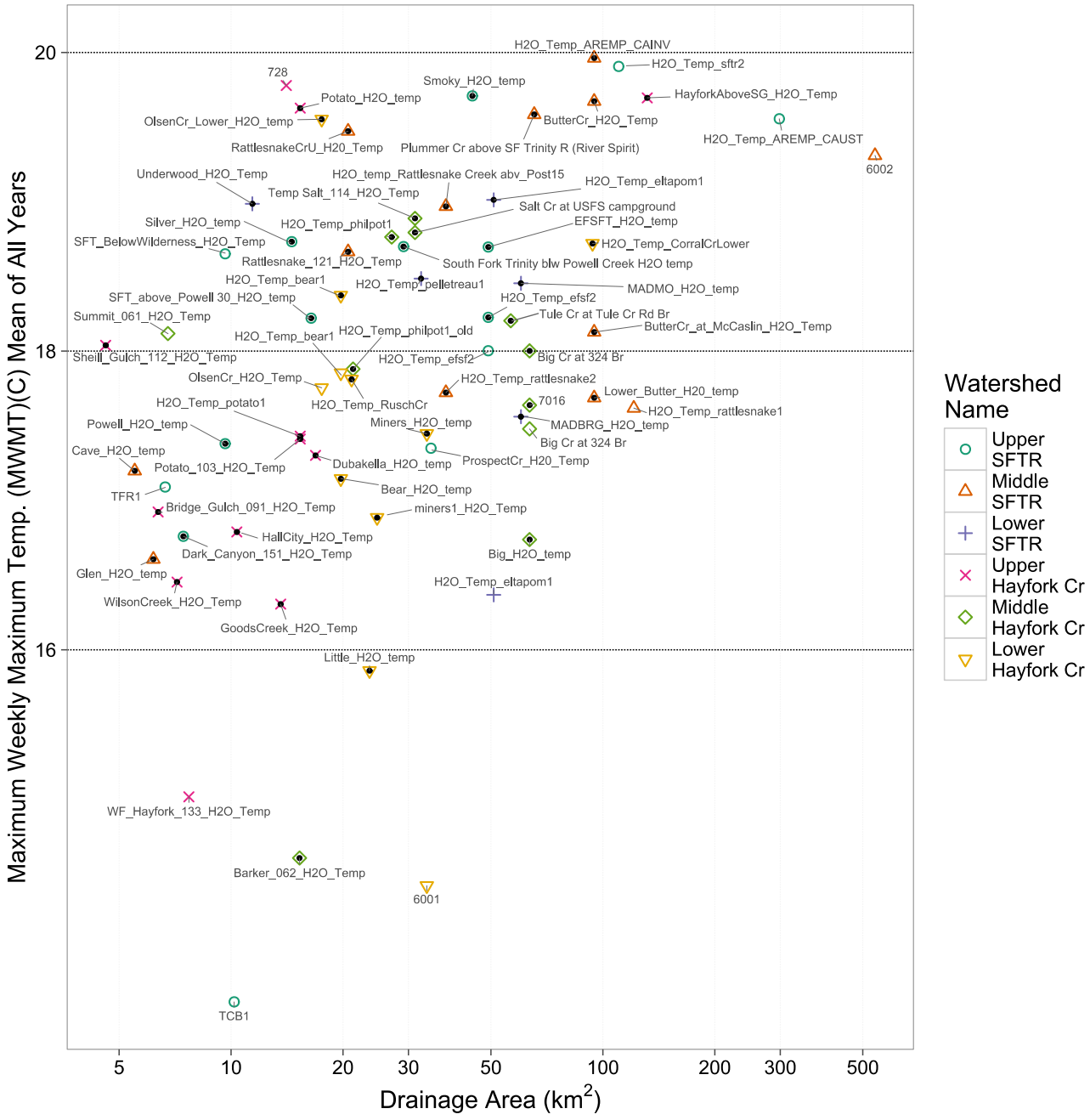

Figure 18. Mean MWMT temperature vs. drainage area (on log scale) for sites accessible to anadromous fish within the SFTR watershed that have a mean MWMT <20 °C. Sites located on the lower-right side of the graph have abnormally cool temperatures for their drainage area. Sites are color-coded by watershed (to assist in finding sites) and sites with more than one year of data have a black dot in center of symbol. Mean MWMT was calculated as the mean of all MWMTs across all years for each site (1989-2015). Horizontal gridlines correspond to the MWMT salmonid suitability categories in Table 2. Sites are labeled by Site Name. Drainage areas are calculated at downstream end of reach (i.e., at next tributary confluence), so in many cases slightly overestimate the true drainage area.

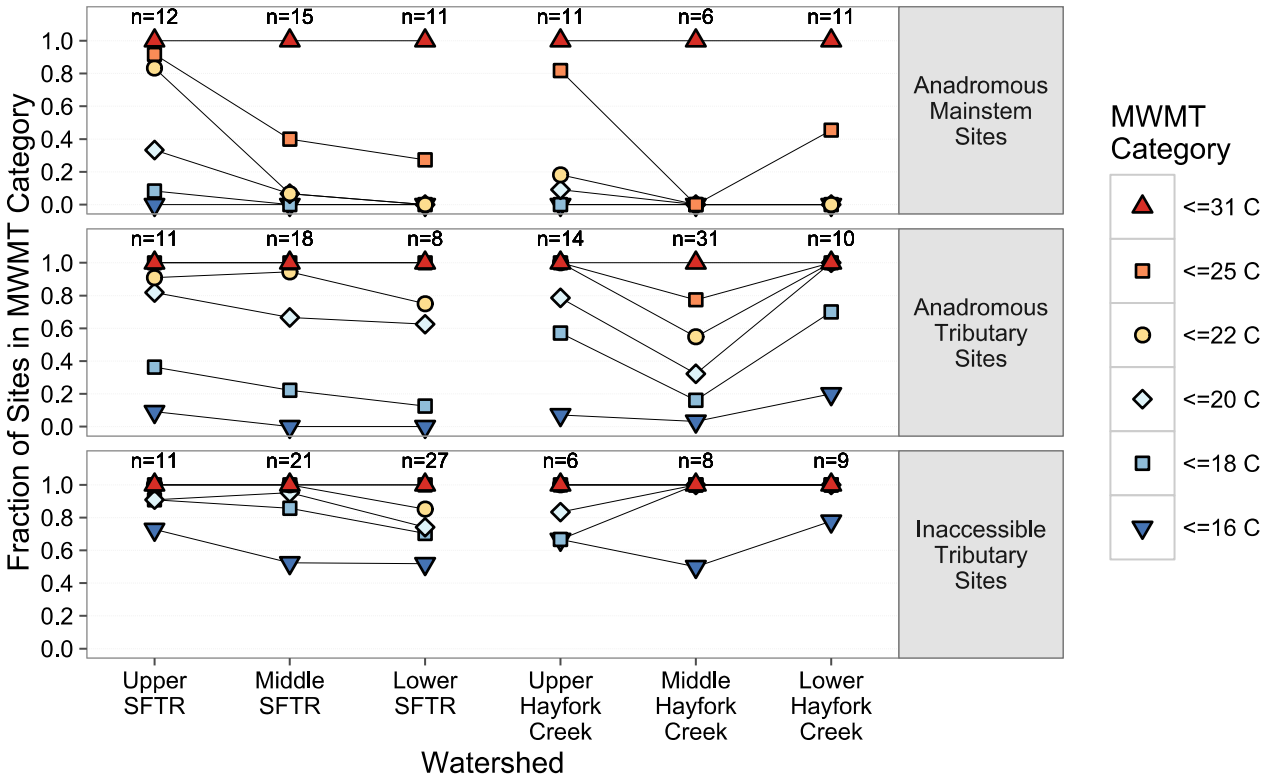

Figure 19. The fraction temperature sites in each watershed where mean MWMT is less than each of the categories of salmonid suitability in Table 2. Mainstem sites (i.e., South Fork Trinity River [SFTR] or Hayfork Creek), sites accessible to anadromous fish, and inaccessible tributary sites are shown in separate panels. Mean MWMT was calculated as the mean of all MWMTs across all years for each site (1989-2015). The number of sites (n) is shown at the top of the graph.

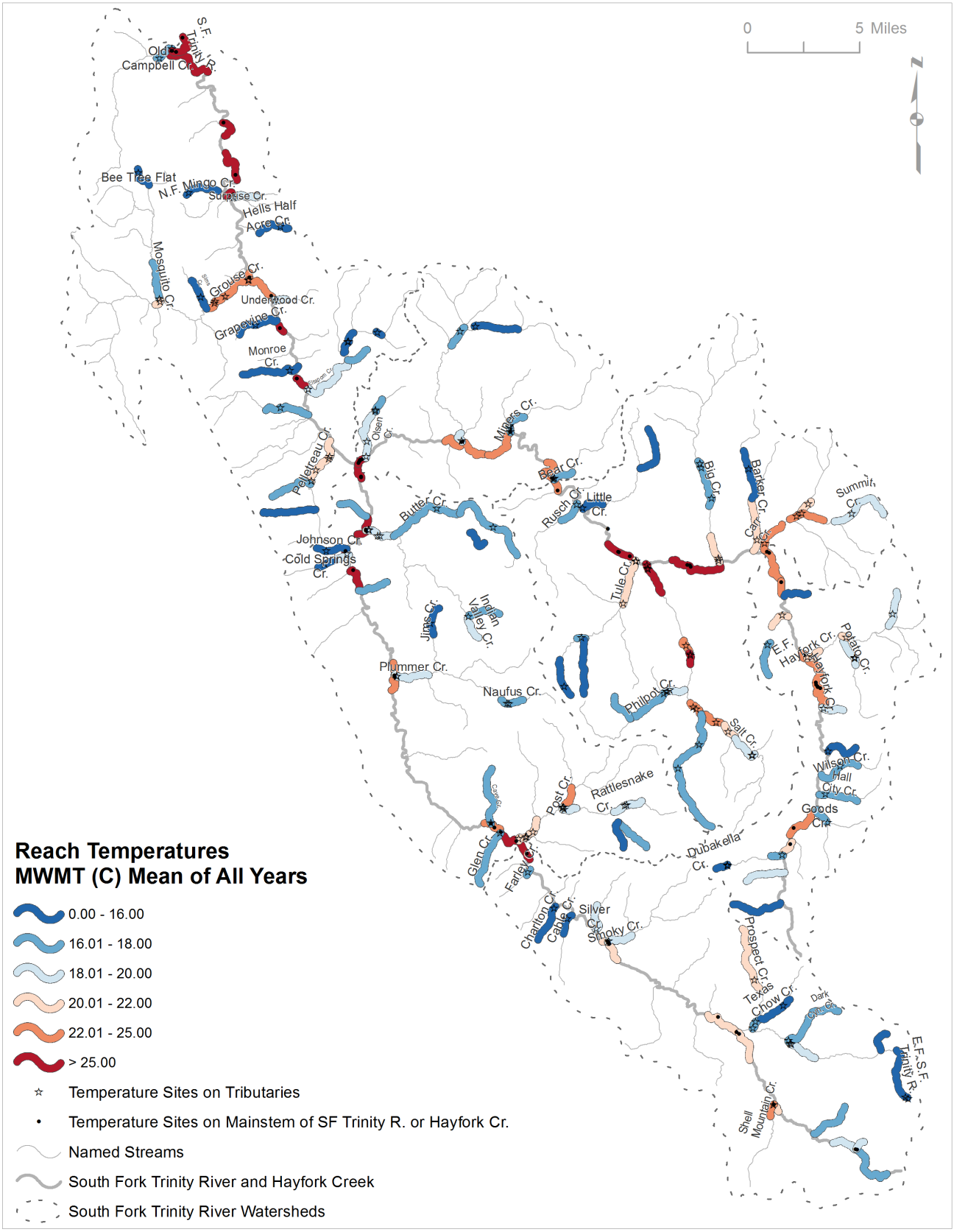

Figure 20. Map with all-year reach-level summary of MWMT stream temperatures within the South Fork Trinity River watershed. Mean reach MWMT values were calculated as the mean of all MWMTs across all years (1989-2015) and sites within a reach. Reaches are color-coded according to the MWMT salmonid suitability categories in Table 2 and labeled by stream name.

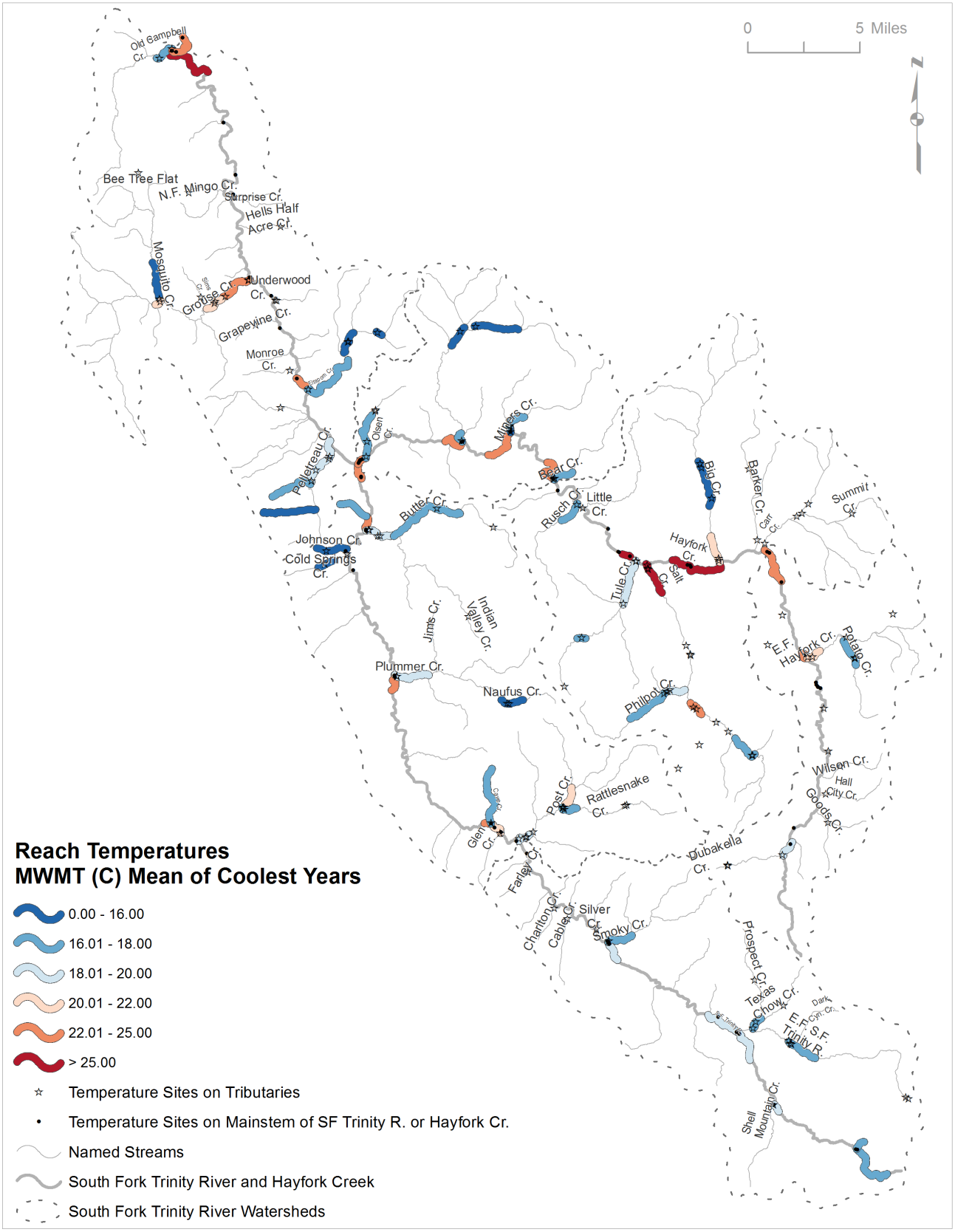

Figure 21. Map with cool-year reach-level summary of MWMT stream temperatures within the South Fork Trinity River watershed. Mean reach MWMT values were calculated as the mean MWMT from all sites within a reach but for the five coolest years only (1993, 2011, 1999, 1989, and 2012). Reaches are color-coded according to the MWMT salmonid suitability categories in Table 2 and labeled by stream name.

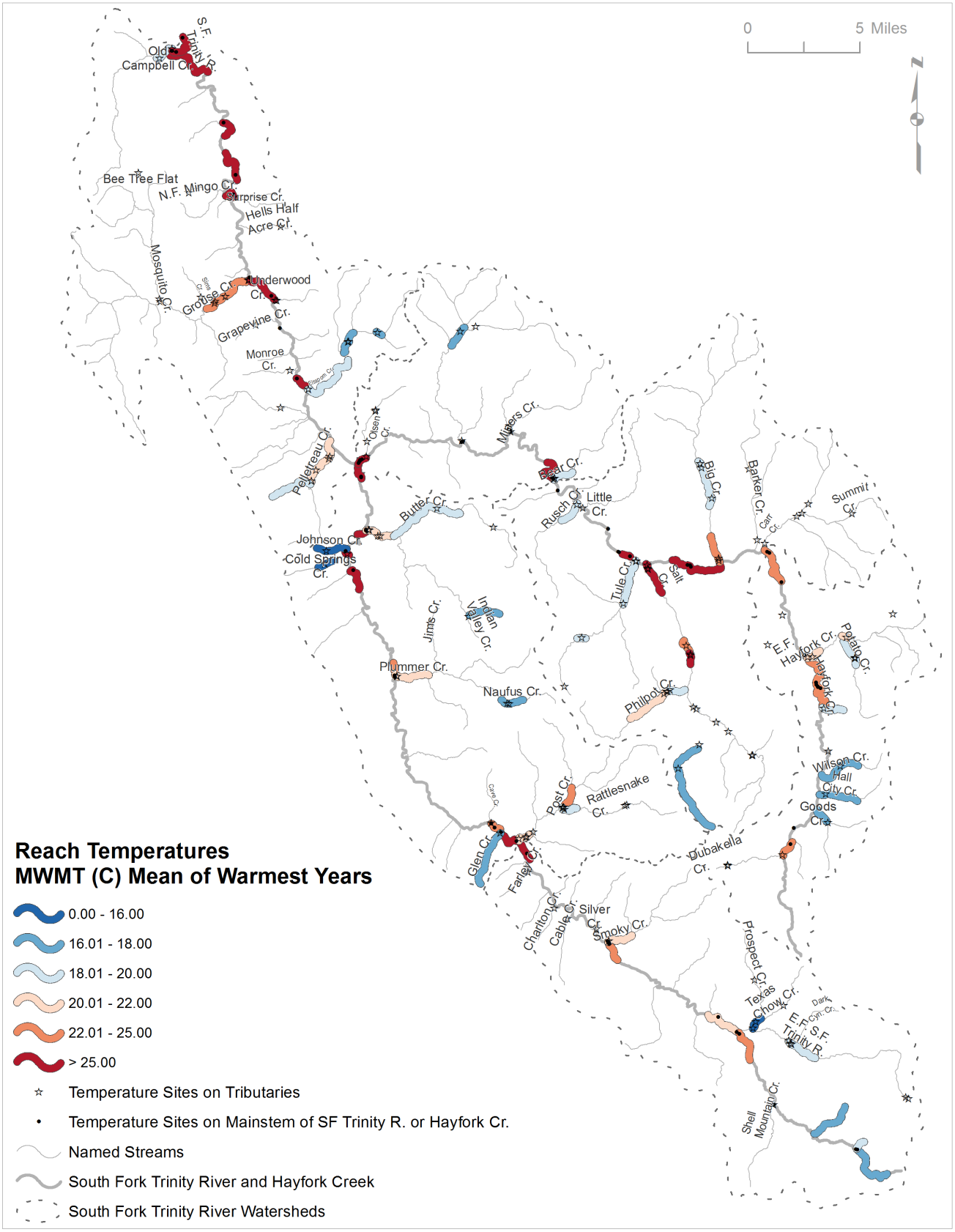

Figure 22. Map with warm-year reach-level summary of MWMT stream temperatures within the South Fork Trinity River watershed. Mean reach MWMT values were calculated as the mean MWMT from all sites within a reach for the five warmest years only (2015, 2006, 2014, 2009, and 1994). Reaches are color-coded according to the MWMT salmonid suitability categories in Table 2 and labeled by stream name.

3.4 STREAM TEMPERATURE DETAILS BY SUBWATERSHED

The following sections present stream temperature data for each of the SFTR's subwatersheds (Figure 1), including a map showing site locations, a graph grouped into reaches showing MWMT temperatures for each site and year, annual time series of MWMT temperatures at a subset of sites, and discussion of data gaps. Data for all sites are included but the discussion focuses on stream reaches that are accessible to anadromous salmonids, especially coho salmon.

3.4.1 LOWER SOUTH FORK TRINITY RIVER

3.4.1.1 STREAM TEMPERATURE SUMMARY

Within the Lower SFTR subwatershed, temperature data are available for reaches of five tributaries (Madden/Old Campbell, Grouse, Underwood, Eltapom, and Pelletreau) accessible to anadromous fish, plus the mainstem SFTR. For sites with intrinsic potential for juvenile coho salmon, MWMT temperatures were likely suitable (16-18 °C) or possibly suitable (18-20 °C) for coho salmon within Madden/Old Campbell in all years, Eltapom Creek in nearly all years, Pelletreau Creek in a majority of years, but never in Grouse Creek or the SFTR. Of those four sites, only Madden/Old Campbell and Eltapom Creek have documented coho salmon presence in the past few decades (Figure 2), although coho salmon were observed in Pelletreau Creek in 1951 (Garwood 2012). MWMT temperatures were possibly suitable (18-20 °C) for coho salmon in Underwood Creek, but the stream is steep and lacks intrinsic potential.

Annual time series for three reaches within the Lower SFTR indicate a few interesting insights: 1) Madden/Old Campbell Creek warms approximately 1 °C in the 0.8 miles between the upper and lower sites, which is enough to push MWMT at the lower site over 18 °C in most years while the upper site only barely exceeded 18 °C in a few years (Figure 25), and 2) Pelletreau Creek, and to a lesser extent Eltapom Creek, were anomalously cool in 2014 considering that year was very warm at most other sites (Figure 27 and Figure 26).

3.4.1.2 DATA GAPS

No stream temperature data have been collected within five steelhead-bearing tributaries, including three with intrinsic potential for juvenile coho salmon in the Hyampom Valley (Big Creek, Mill Creek, and Kerlin Creek) and two without intrinsic potential for coho (Amon Creek and Coon Creek). In the one year of data available at a site on Big Creek upstream of a natural total barrier, MWMT temperatures were likely suitable (16-18 °C) for coho salmon, but it is unknown whether the lower section that is accessible to anadromous fish has temperatures as favorable.

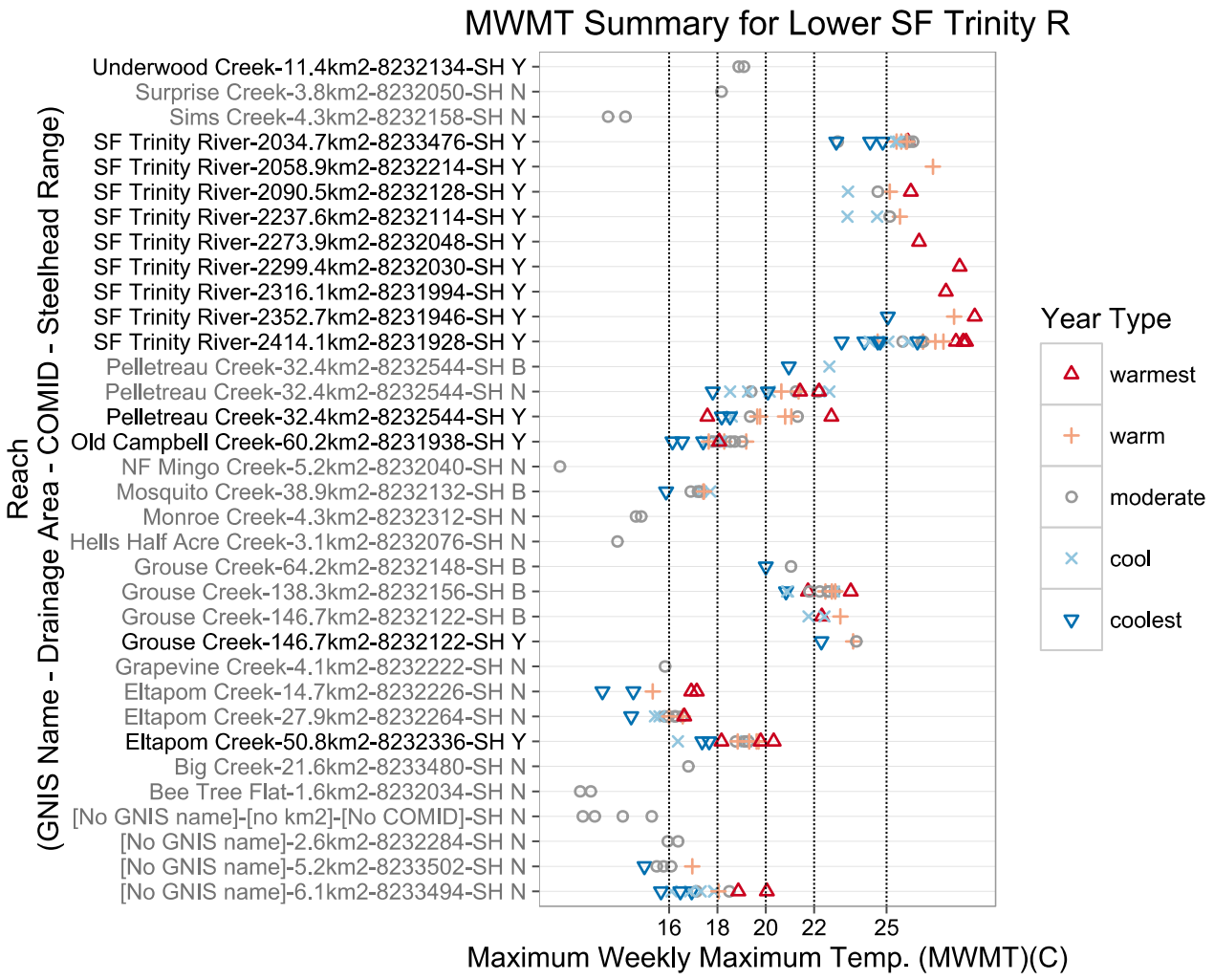

Figure 23. Reach-level summary of stream temperatures measured at sites within the Lower South Fork Trinity River subwatershed. Each point is the MWMT for one year, site, and source entity. Reaches are sorted first by official stream name (U.S. Geological Survey Geographic Names Information System, GNIS), then by drainage area at downstream end of reach (in units of km^2), then by whether or not sites are located within the California Department of Fish and Wildlife's winter steelhead distribution. Reach names within steelhead distribution ("SH Y") are colored black, while other reaches are colored gray ("SH B" = site is designated as within winter steelhead range, but is upstream from a total fish passage barrier, "SH N" = upstream of steelhead range). Symbols for MWMT values are colored according to year type (see section 0 for details). Vertical gridlines correspond to the MWMT salmonid suitability categories in Table 2.

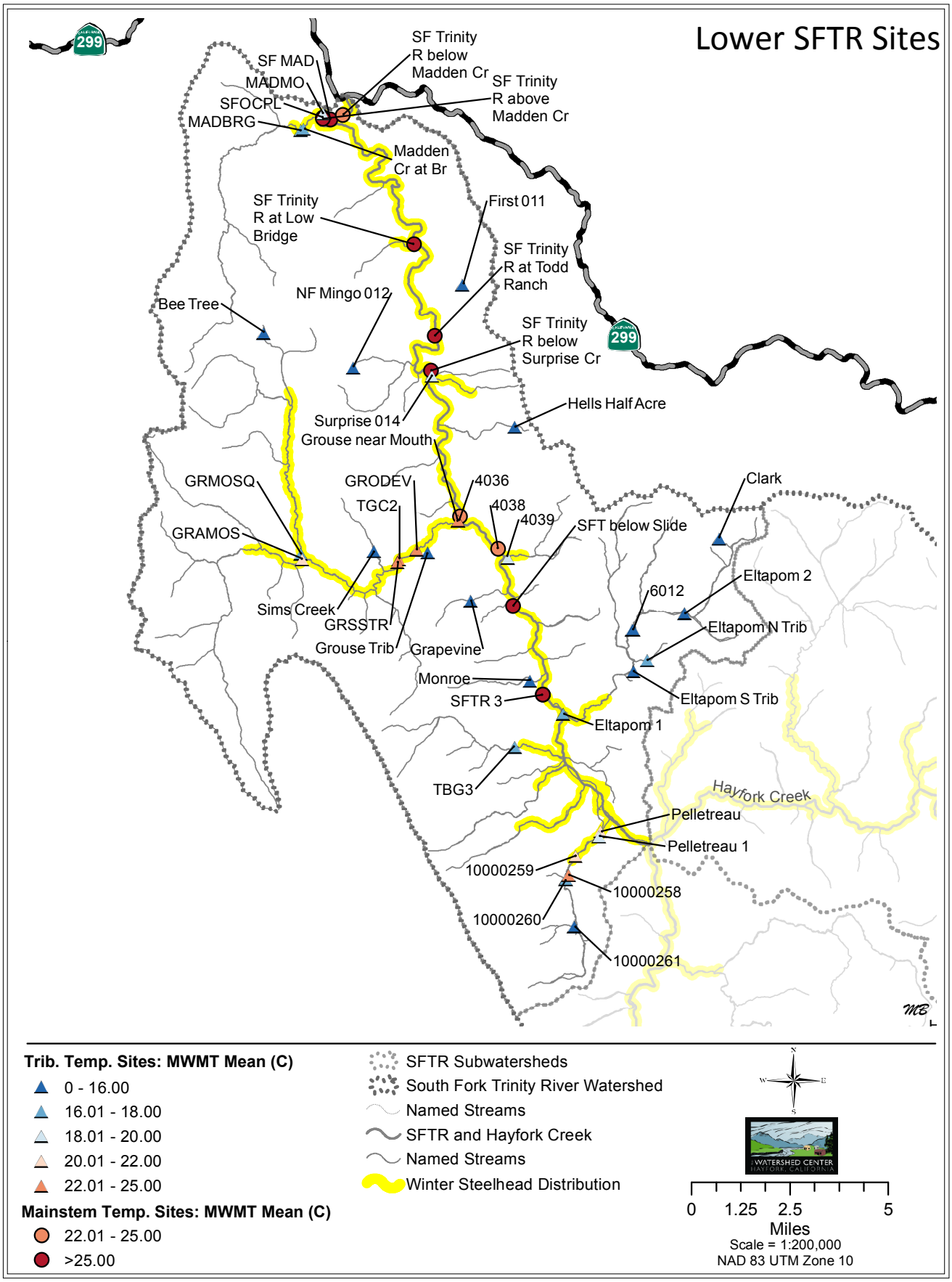

Figure 24. Map showing stream temperature monitoring sites in the Lower South Fork Trinity River subwatershed. Sites and reaches are color-coded by mean MWMT values according to the salmonid suitability categories in Table 2, with values calculated as the mean MWMT across all years (1989-2015). Winter steelhead distribution (CDFW 2012b) is shown to indicate habitats accessible to anadromous salmonids.

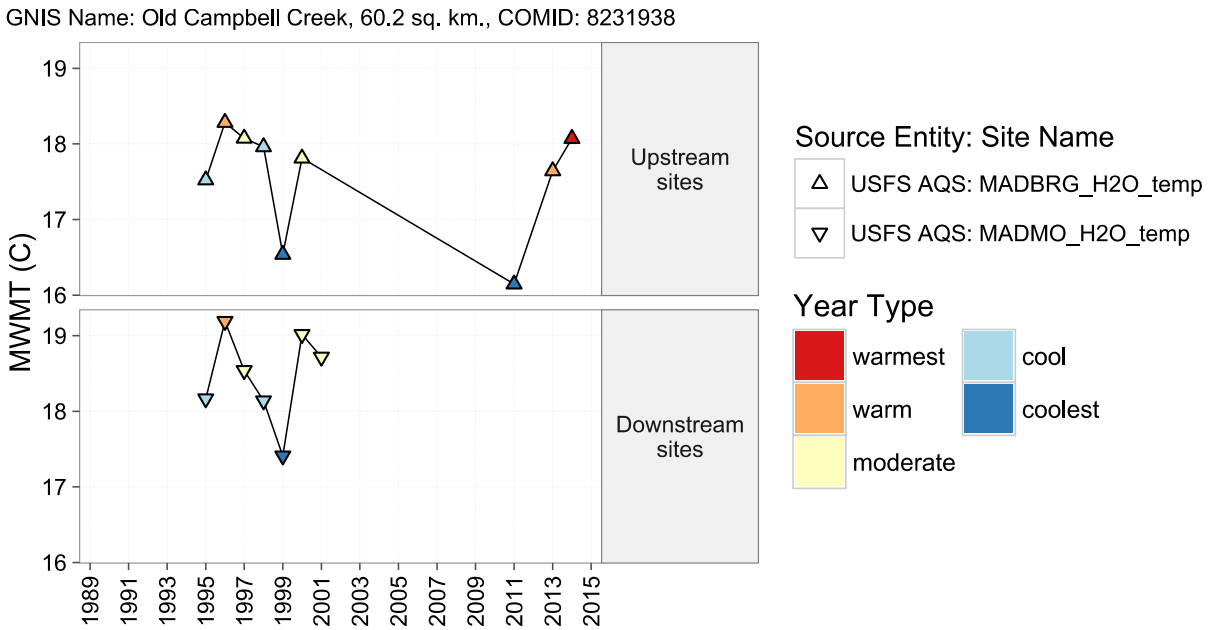

Figure 25. Time series of measured stream temperatures for sites in the lower reach of Old Campbell Creek (COMID 8231938, aka Madden Creek). The reach is divided up into two sections, listed in panels according to order of flow (upstream on top). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

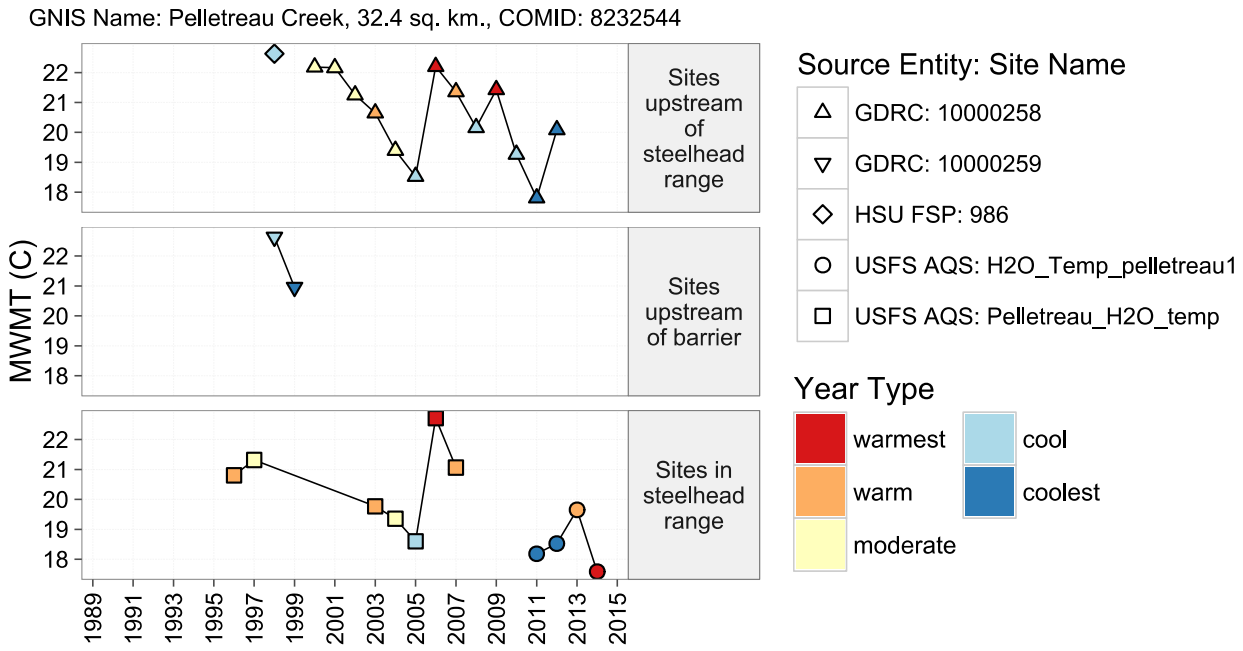

Figure 26. Time series of measured MWMT stream temperatures for sites in the lower reach of Pelletreau Creek (COMID 8232544). The reach is divided up into three sections, listed in panels according to order of flow (upstream on top). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

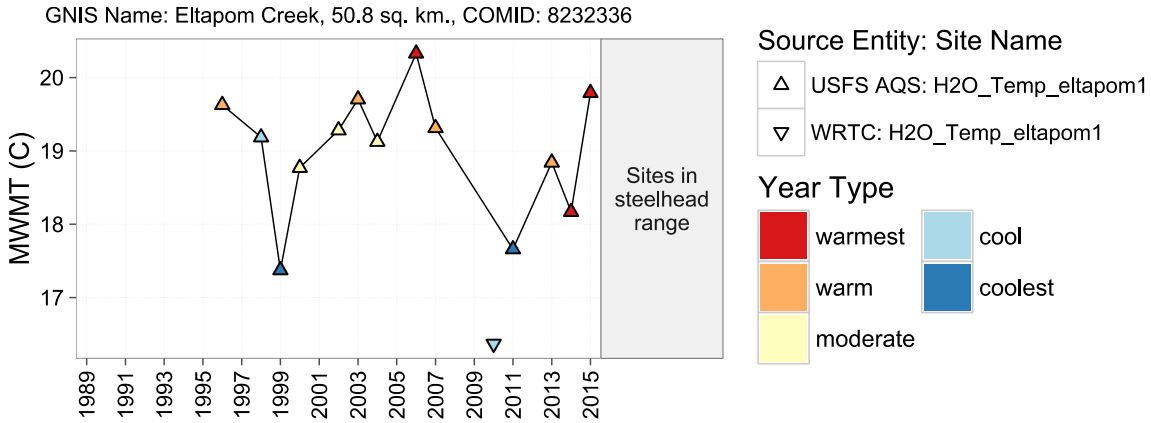

Figure 27. Time series of measured stream temperatures for sites in the lower reach of Eltapom Creek (COMID 8232336). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

3.4.2 MIDDLE SOUTH FORK TRINITY RIVER

3.4.2.1 STREAM TEMPERATURE SUMMARY

Within the Middle SFTR subwatershed, temperature data are available for six tributaries (Butter, Plummer, Cave, Glen, Rattlesnake, and Post [tributary to Rattlesnake]) that are accessible to anadromous fish, plus the mainstem SFTR (Figure 28, Figure 29). The mainstem SFTR warms as it flows downstream and has consistently higher temperatures than its tributaries within the Middle SFTR subwatershed (Figure 28, Figure 29). The multiple sites on Rattlesnake Creek show substantial warming between upstream and downstream sites. MWMT temperatures were likely suitable (16-18 °C) in all years measured in Glen and Cave Creeks, but Cave Creek was not monitored in any of the five warmest years (Figure 29). Lower Post Creek shows exceptional inter-annual variability, with a 7 °C range (Figure 29), which does not appear to be due to inter-site differences because the two sites near its mouth are essentially the same location (Figure 28). MWMT at Plummer Creek is above 20 °C in most years.

Butter Creek, which has previous documentation of coho salmon presence (Figure 2), has two clusters of sites: "ButterCr_H2O_Temp" and "H2O_Temp_AREMP_CAINV" are located approximately 0.1 from the mouth while "Lower_Butter_H20_temp" and "ButterCr_at_McCaslin_H2O_Temp" are located approximately an additional 0.6 miles upstream (Figure 28). Despite the short distance between them, the upstream sites appear to be substantially cooler than the downstream sites, which can only be partially explained by the lack of data at the upstream sites during the warmest years (Figure 30).

3.4.2.2 DATA GAPS

No stream temperature data have been collected within six steelhead-bearing tributaries, including five with at least some intrinsic potential for juvenile coho salmon (Little Rattlesnake Creek, Jims Creek [tributary to Plummer], Glade Creek [tributary to Post Creek within the Trinity Pines Subdivision[24]] and an unnamed headwater tributary to Rattlesnake Creek) and one without intrinsic potential for coho salmon (Little Bear Wallow Creek). Jims Creek and Little Bear Wallow Creeks have a natural total barrier within a half-mile upstream from their mouths (Figure 28).

[24] The Trinity Pines subdivision is a rural residential area with small parcels and a large number of marijuana gardens. Many new wells have been drilled there in the past few years and stream diversions are also increasing. Trinity Pines is visible in Figure 2 in the Post and Philpot Creek watersheds as private lands surrounded by National Forest.

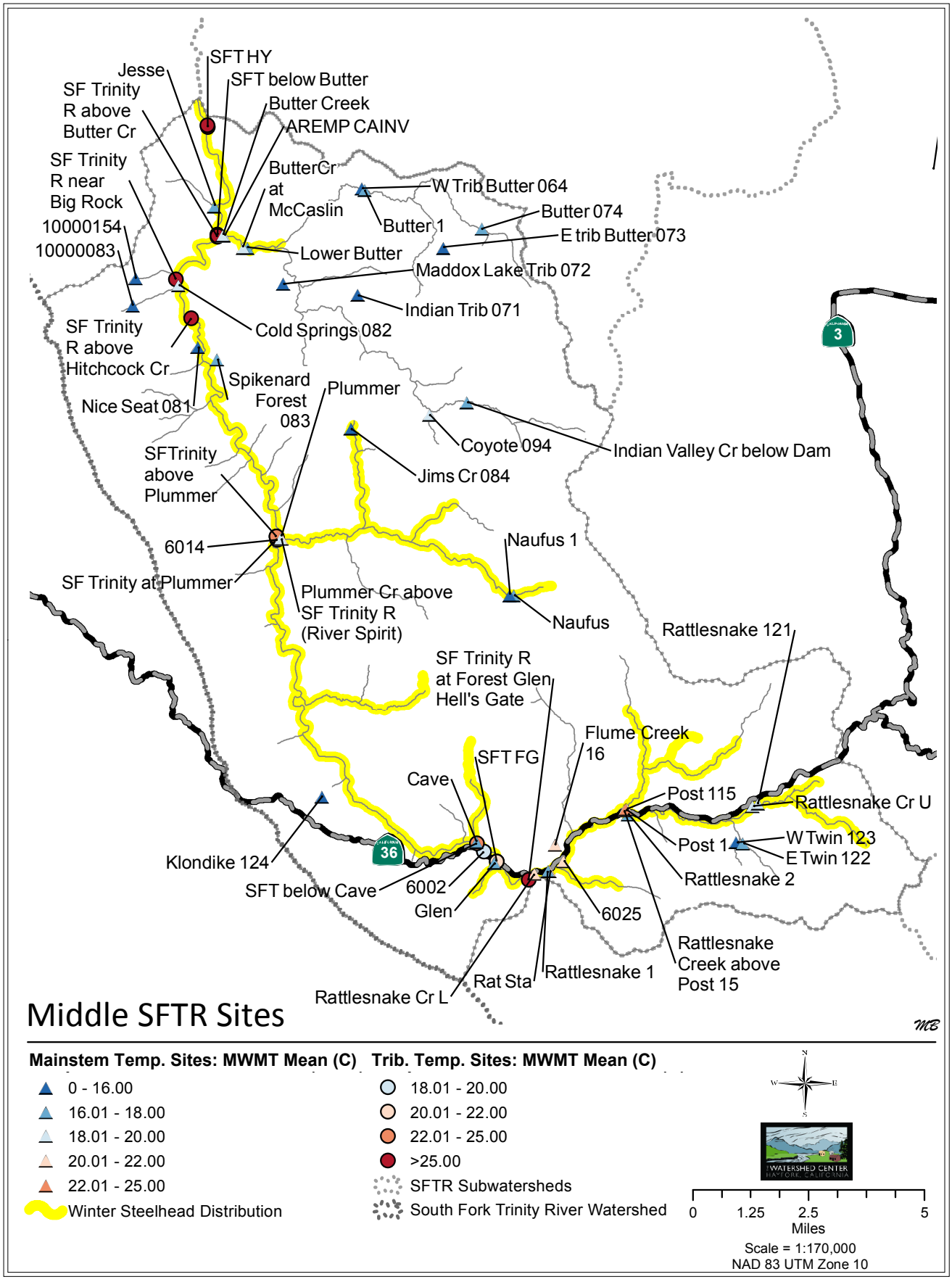

Figure 28. Map showing stream temperature monitoring sites in the Middle South Fork Trinity River subwatershed. Sites and reaches are color-coded by mean MWMT values according to the salmonid suitability categories in Table 2, with values calculated as the mean MWMT across all years (1989-2015). Winter steelhead distribution (CDFW 2012b) is shown to indicate habitats accessible to anadromous salmonids.

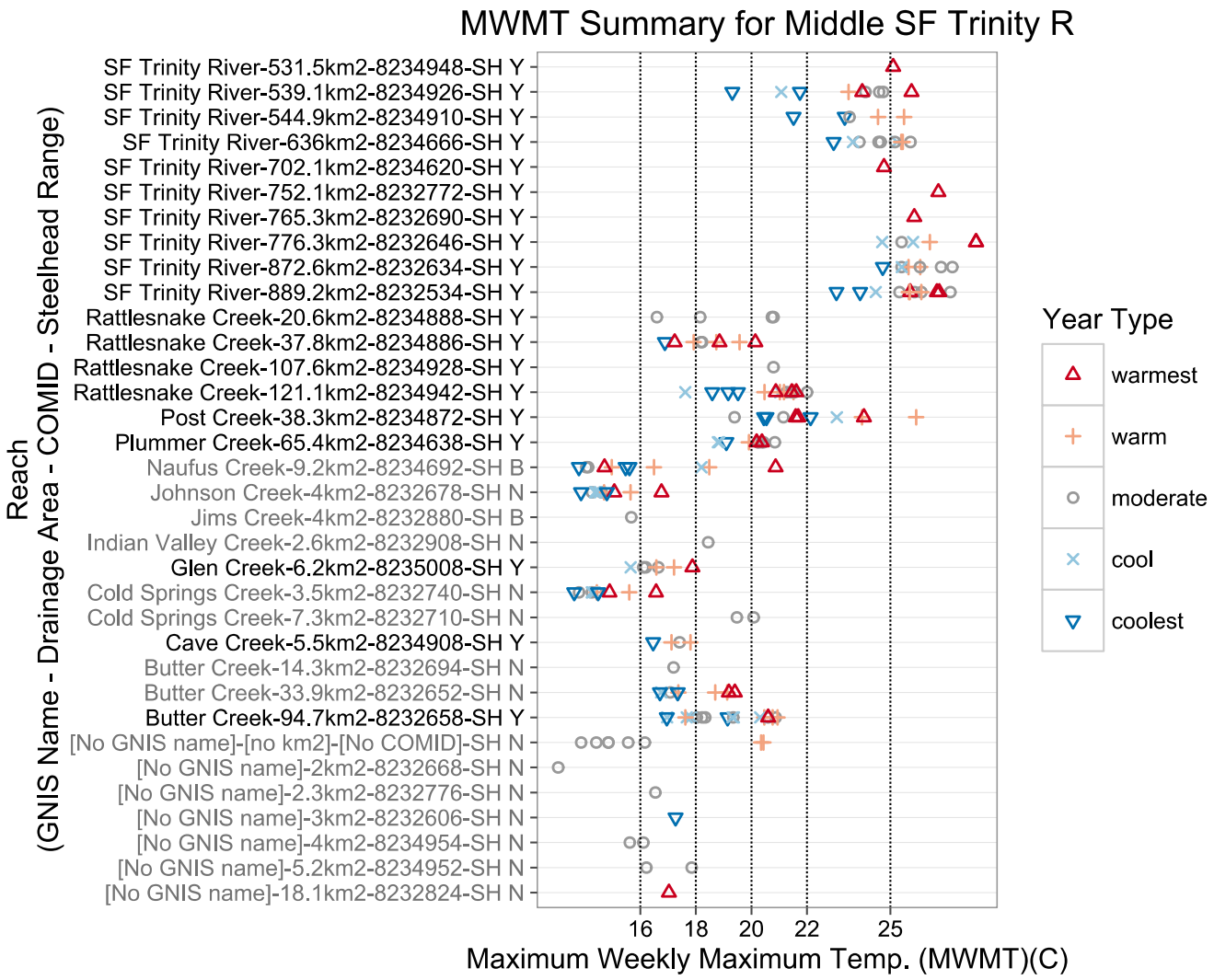

Figure 29. Reach-level summary of stream temperatures measured at sites within the Middle South Fork Trinity River subwatershed. Each point is the MWMT for one year, site, and source entity. Reaches are sorted first by official stream name (U.S. Geological Survey Geographic Names Information System, GNIS), then by drainage area at downstream end of reach (in units of km^2), then by whether or not sites are located within the California Department of Fish and Wildlife's winter steelhead distribution. Reach names within steelhead distribution ("SH Y") are colored black, while other reaches are colored gray ("SH B" = site is designated as within winter steelhead range, but is upstream from a total fish passage barrier, "SH N" = upstream of steelhead range). Symbols for MWMT values are colored according to year type (see section 0 for details). Vertical gridlines correspond to the MWMT salmonid suitability categories in Table 2.

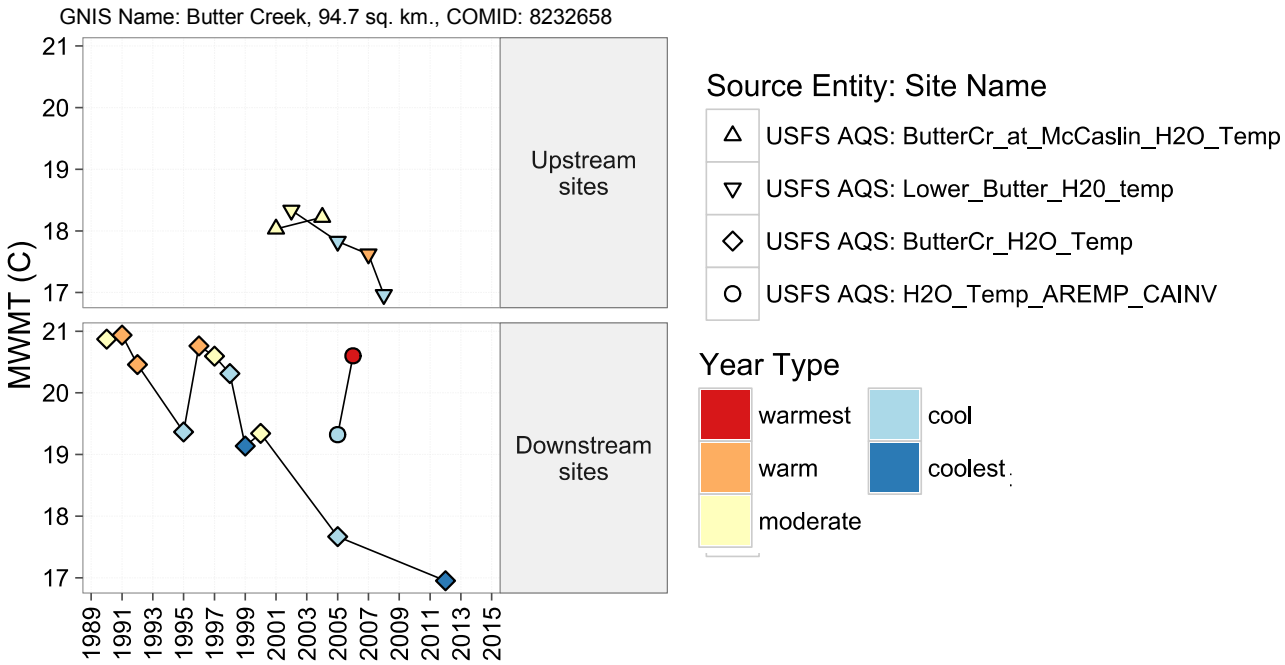

Figure 30. Time series of measured MWMT stream temperatures for sites in the lower reach of Butter Creek (COMID 8232652). The reach is divided up into two sections, listed in panels according to order of flow (upstream on top). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

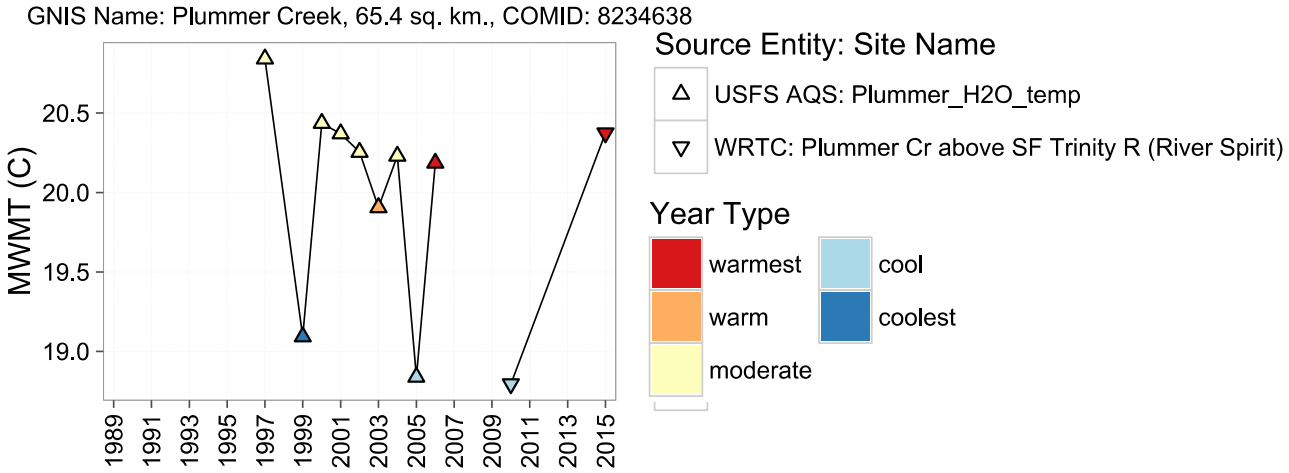

Figure 31. Time series of measured MWMT stream temperatures for sites in the lower reach of Plummer Creek (COMID 8234638). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details). The reason for the anomalously low temperature in 2010 is unknown.

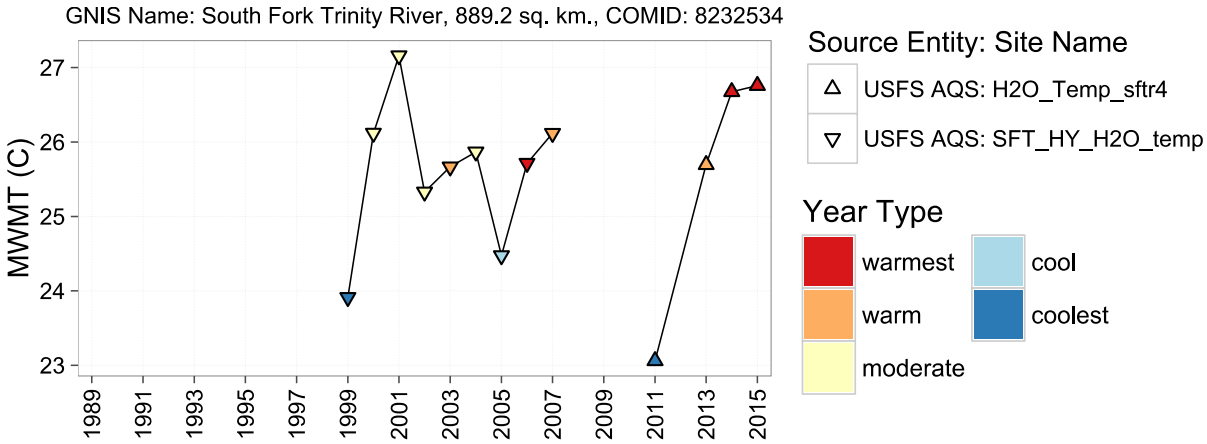

Figure 32. Time series of measured MWMT stream temperatures for sites in the reach of South Fork Trinity River just upstream of the confluence with Hayfork Creek (COMID 8232534). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

3.4.3 UPPER SOUTH FORK TRINITY RIVER

3.4.3.1 STREAM TEMPERATURE SUMMARY

Within the Upper SFTR subwatershed, temperature data are available for reaches of nine tributaries (Farley Creek, Cable Creek, Silver Creek, Smoky Creek, East Fork SFTR, Shell Mountain Creek, an un-named tributary at the headwaters of the SFTR, Prospect Creek [tributary to East Fork], and Dark Canyon Creek [tributary to East Fork]) that are accessible to anadromous fish, plus the mainstem SFTR (Figure 33, Figure 34). The mainstem SFTR warms as it flows downstream and its lower reaches have consistently higher temperatures than its tributaries within the Upper SFTR subwatershed, with the exception of Shell Mountain Creek (Figure 33, Figure 34). MWMT temperatures were all less than 20 °C in the Upper SFTR subwatershed for all sites in all years except the mainstem SFTR and Shell Mountain Creek.

3.4.3.2 DATA GAPS

The primary upper mainstem SFTR monitoring station was relocated from "SFT_Bridge_33_H20_temp" downstream of the East Fork (Figure 35) to "H20_temp_sftr2" upstream of the East Fork when the Shasta Trinity National Forest stream temperature monitoring program re-started in 2011 (Figure 36), hindering long-term comparisons. Data from CDFW's "SF Trinity River above Bramlet" site from 2015, located approximately 1.2 miles downstream of the previous "SFT_Bridge_33_H20_temp" site, indicates temperatures downstream of the East Fork confluence are slightly cooler than above the confluence. It would be beneficial to monitor an additional year or two at the old "SFT_Bridge_33_H20_temp" to develop a crosswalk between the old and new site.

The only two steelhead-bearing tributaries that have no water temperature data are Red Mountain Creek and an unnamed stream between Smoky Creek and Red Mountain Creek, neither of which have more than a tiny amount of low intrinsic potential habitat for juvenile coho salmon. Two tributaries that do have intrinsic potential habitat for coho salmon, but do not have confirmed steelhead presence or stream temperature data, are Happy Camp Creek and Bierce Creek which are located on the west-central portion of the Upper SFTR subwatershed (Figure 33).

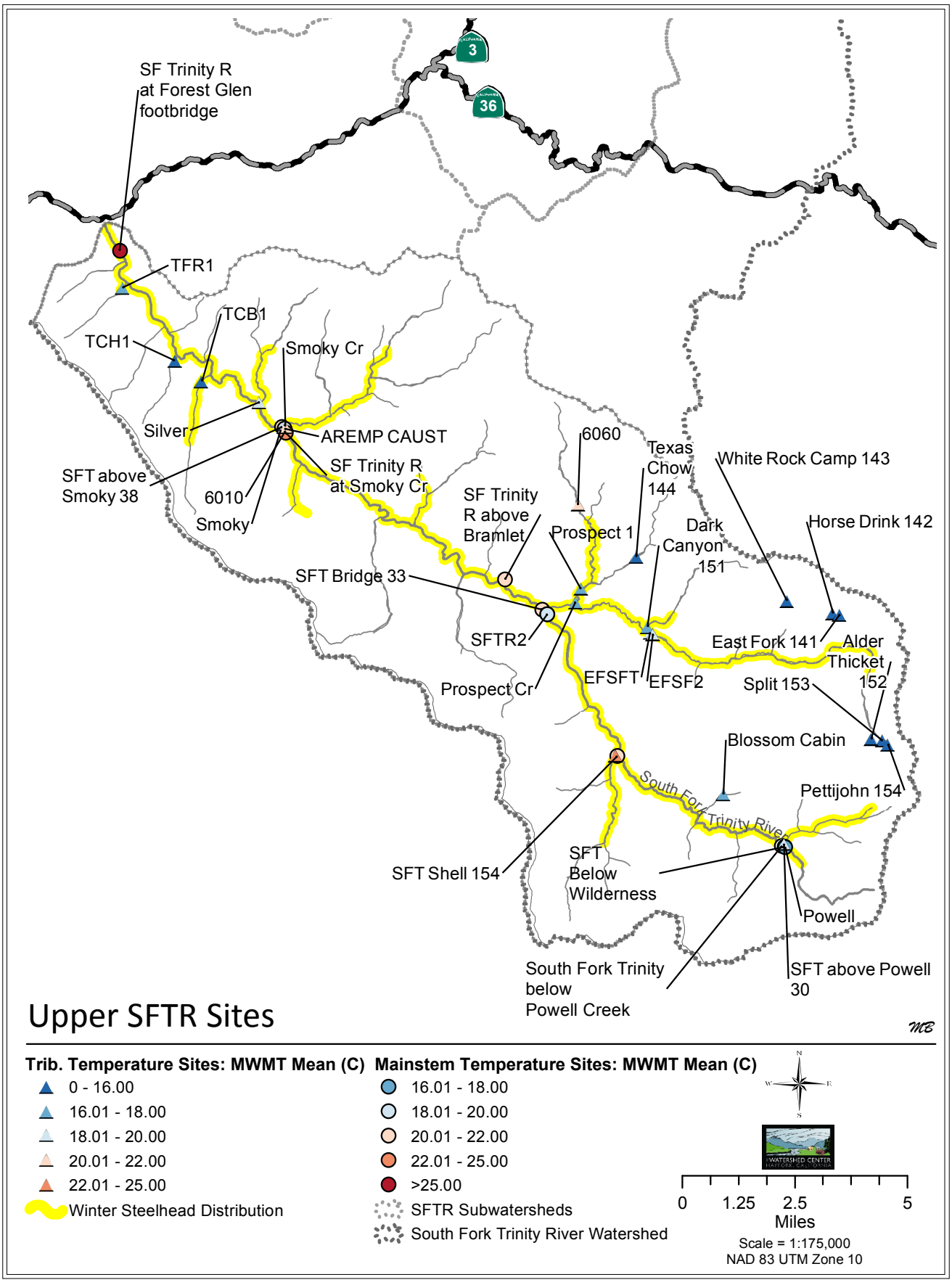

Figure 33. Map showing stream temperature monitoring sites in the Upper South Fork Trinity River subwatershed. Sites and reaches are color-coded by mean MWMT values according to the salmonid suitability categories in Table 2, with values calculated as the mean MWMT across all years (1989-2015). Winter steelhead distribution (CDFW 2012b) is shown to indicate habitats accessible to anadromous salmonids.

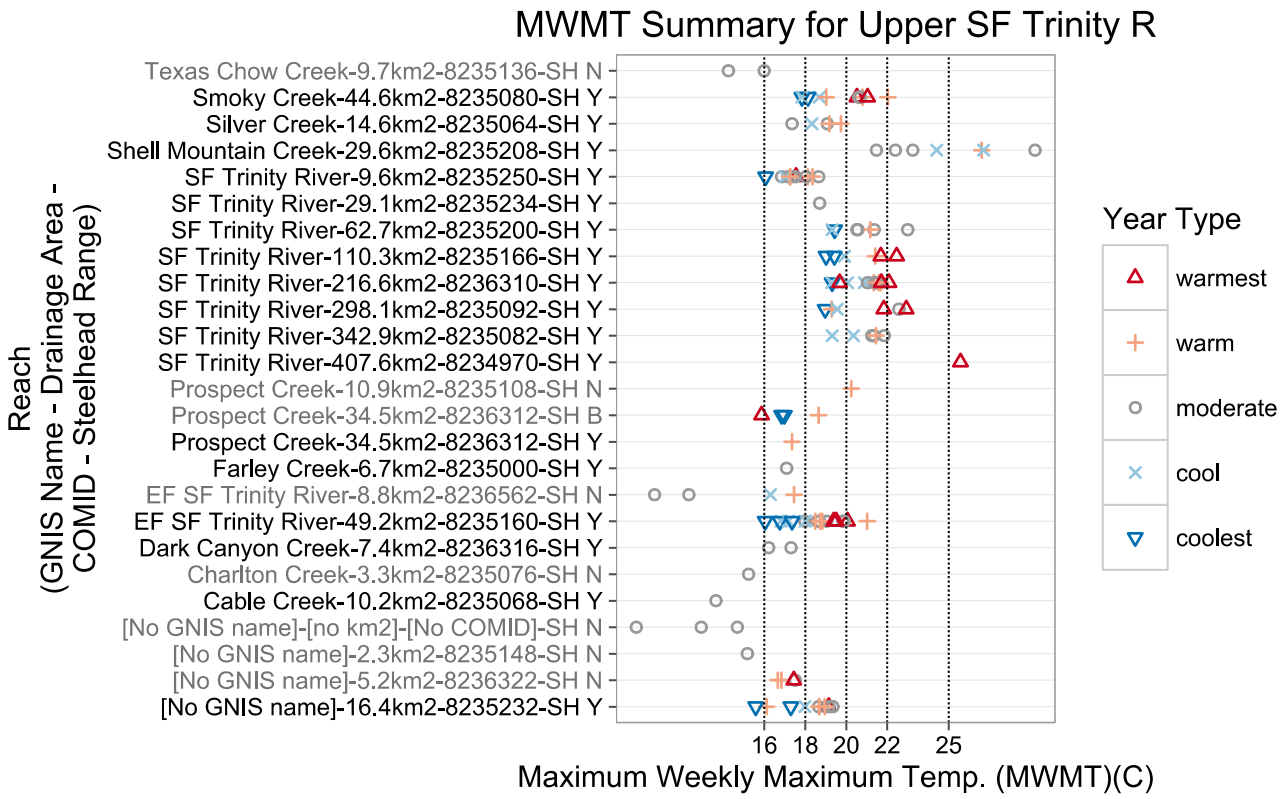

Figure 34. Reach-level summary of stream temperatures measured at sites within the Upper South Fork Trinity River subwatershed. Each point is the MWMT for one year, site, and source entity. Reaches are sorted first by official stream name (U.S. Geological Survey Geographic Names Information System, GNIS), then by drainage area at downstream end of reach (in units of km^2), then by whether or not sites are located within the California Department of Fish and Wildlife's winter steelhead distribution. Reach names within steelhead distribution ("SH Y") are colored black, while other reaches are colored gray ("SH B" = site is designated as within winter steelhead range, but is upstream from a total fish passage barrier, "SH N" = upstream of steelhead range). Symbols for MWMT values are colored according to year type (see section 0 for details). Vertical gridlines correspond to the MWMT salmonid suitability categories in Table 2.

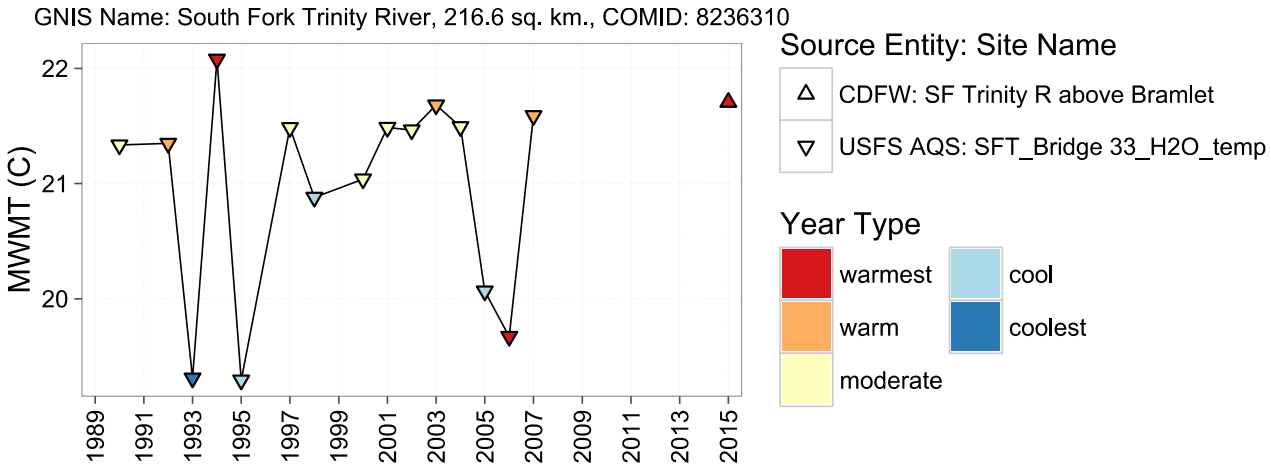

Figure 35. Time series of measured MWMT stream temperatures for sites in the reach of the South Fork Trinity River below the confluence with the East Fork (COMID 8236310). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details). The reason for the anomalously low temperature in 2010 is unknown.

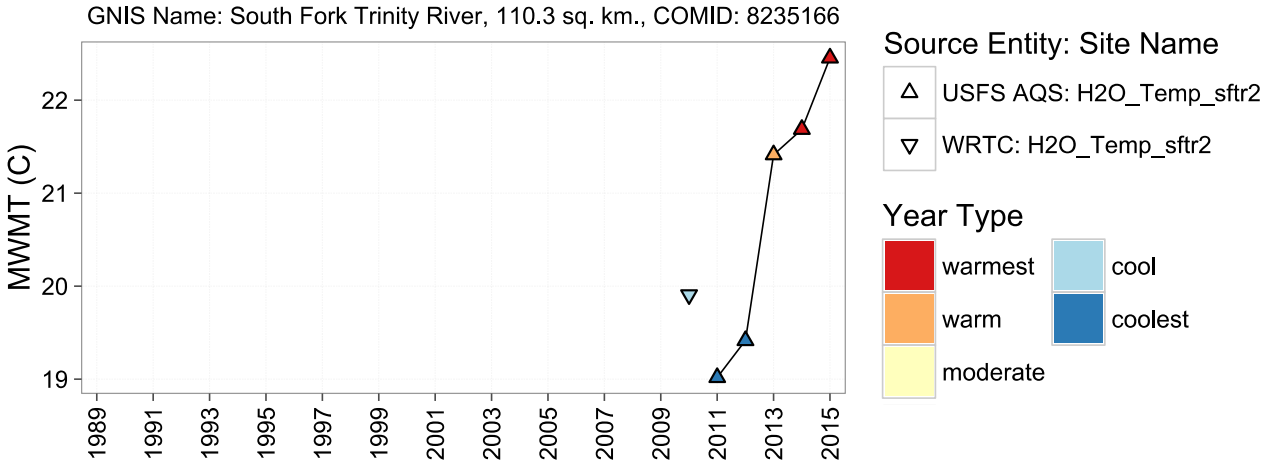

Figure 36. Time series of measured MWMT stream temperatures for sites in the reach of the South Fork Trinity River above the confluence with the East Fork (COMID 8235166). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details). The reason for the anomalously low temperature in 2010 is unknown.

3.4.4 LOWER HAYFORK CREEK

3.4.4.1 STREAM TEMPERATURE SUMMARY

Within the Lower Hayfork Creek subwatershed, temperature data are available for reaches of six tributaries (Olsen, Corral [aka Corral Bottom], Miners, Bear, Rusch, and Little Creeks) that are accessible to anadromous fish, plus the mainstem Hayfork Creek. The intrinsic potential for juvenile coho habitat is highest in Olsen Creek, intermediate in Little Creek, Rusch Creek, Bear Creek and Miners Creek, and lowest in Corral Creek. Little Creek had very low temperatures, where MWMT ranged from 15.5 to 16.1 °C in three years of monitoring which included two warm years and one cool year. MWMT temperatures were likely suitable (16-18 °C) for coho salmon within Bear Creek and Miners Creek in most years monitored, but there are no data for Miners Creek in the warmest years (Figure 38). MWMT temperatures in Corral and Olsen Creek, which are the only streams within the Lower Hayfork Creek subwatershed where coho salmon presence has been documented (Figure 2[25], Garwood 2012), were above 18 °C except in the coolest years, exceeded possibly suitable (18-20 °C) in some warm years, and were not monitored during the warmest years (Figure 38, Figure 39, Figure 40).

3.4.4.2 DATA GAPS

No stream temperature data have been collected within three steelhead-bearing tributaries with low intrinsic potential for juvenile coho salmon (West Fork Miners Creek, Grassy Flat Creek, an unnamed tributary to Bear Creek, and an unnamed tributary to Rusch Creek).

[25] Corral Creek does not show coho salmon presence in the CDFW (2012) coho salmon distribution GIS layer shown in Figure 2, but Garwood (2012) lists presence in 2001.

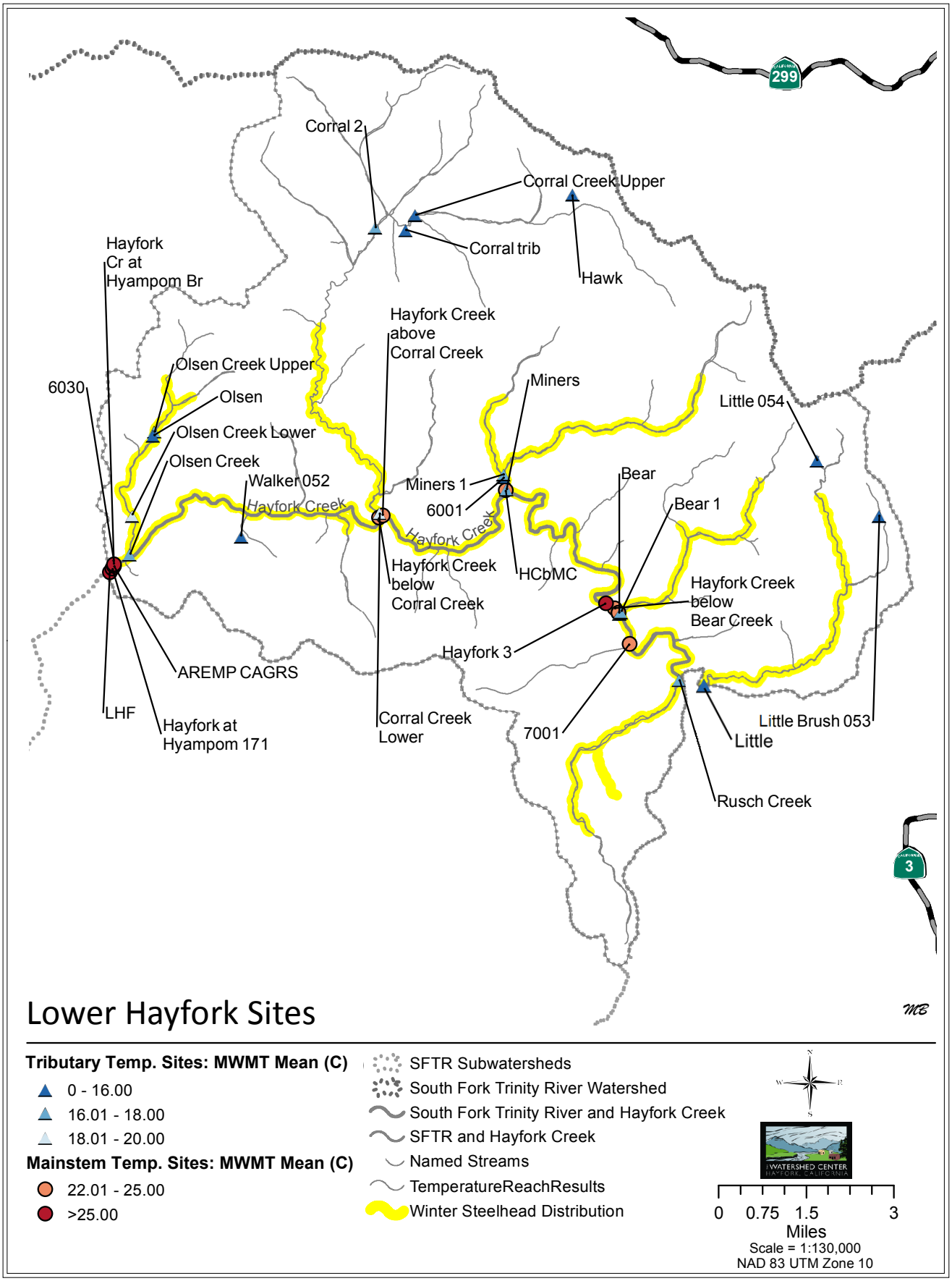

Figure 37. Map showing stream temperature monitoring sites in the Lower Hayfork Creek subwatershed. Sites and reaches are color-coded by mean MWMT values according to the salmonid suitability categories in Table 2, with values calculated as the mean MWMT across all years (1989-2015). Winter steelhead distribution (CDFW 2012b) is shown to indicate habitats accessible to anadromous salmonids.

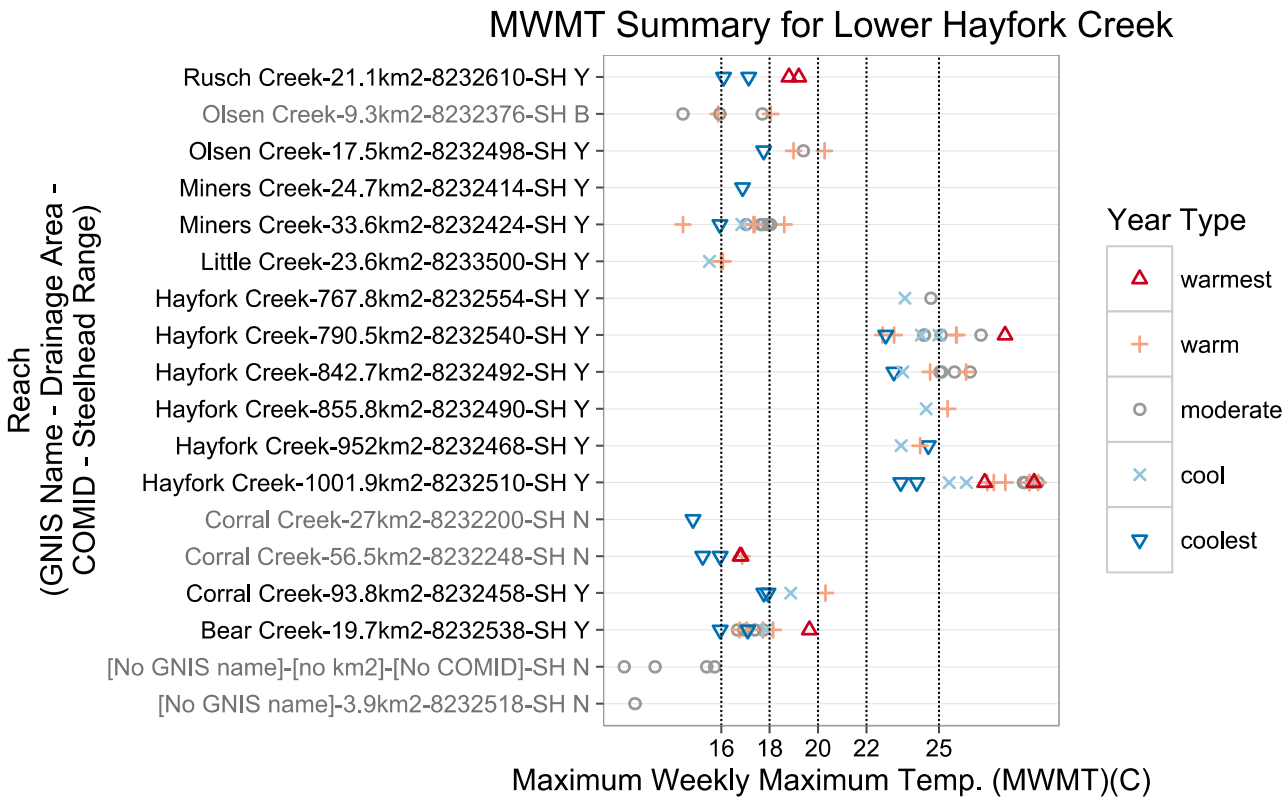

Figure 38. Reach-level summary of stream temperatures measured at sites within the Lower Hayfork Creek subwatershed. Each point is the MWMT for one year, site, and source entity. Reaches are sorted first by official stream name (U.S. Geological Survey Geographic Names Information System, GNIS), then by drainage area at downstream end of reach (in units of km^2), then by whether or not sites are located within the California Department of Fish and Wildlife's winter steelhead distribution. Reach names within steelhead distribution ("SH Y") are colored black, while other reaches are colored gray ("SH B" = site is designated as within winter steelhead range, but is upstream from a total fish passage barrier, "SH N" = upstream of steelhead range). Symbols for MWMT values are colored according to year type (see section 0 for details). Vertical gridlines correspond to the MWMT salmonid suitability categories in Table 2.

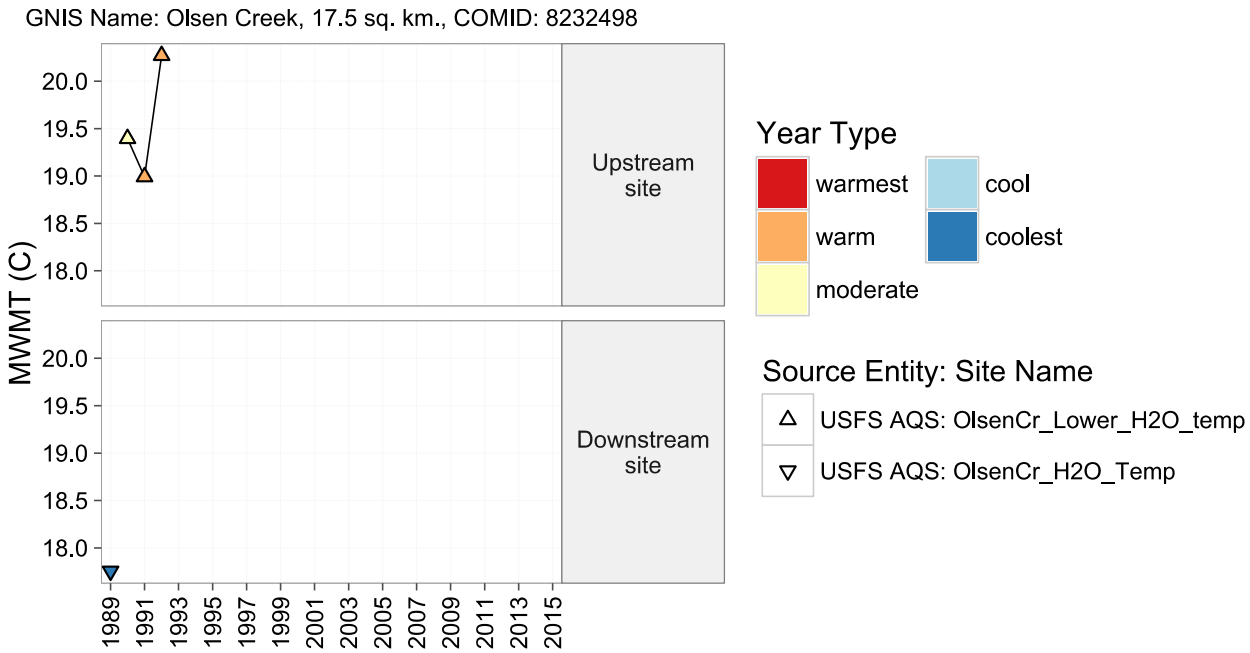

Figure 39. Time series of measured MWMT stream temperatures for sites in the lower reach of Olsen Creek (COMID 8232498). The reach is divided up into two sections, listed in panels according to order of flow (upstream on top). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

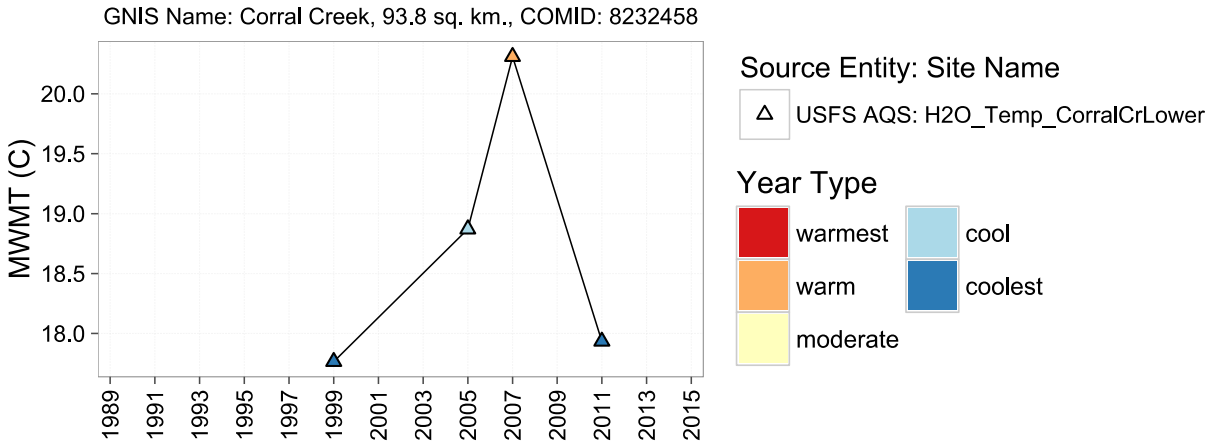

Figure 40. Time series of measured MWMT stream temperatures for sites in the lower reach of Corral Creek (COMID 8232458).

3.4.5 MIDDLE HAYFORK CREEK

3.4.5.1 STREAM TEMPERATURE SUMMARY

Within the Middle Hayfork Creek subwatershed, temperature data are available for reaches of seven tributaries (Tule, Salt, Big, Barker, Carr, Summit (tributary to Carr), and Philpot [trib to Salt]) that are accessible to anadromous fish, plus the mainstem Hayfork Creek. Upper Barker Creek[26] had by far the lowest MWMT temperatures of any site accessible to anadromous fish (14.6 °C in both 2001 and 2002, which were both moderate years) in the watershed (Figure 42). The next coolest site was upper Big Creek, where MWMT temperatures did not exceed the upper limit for possibly suitable for coho salmon (20°C), but still exceeded the likely suitable limit (16-18 °C). Big Creek warms substantially (approximately 4 °C) between its upper and lower reaches, likely due in part to large quantities of water being diverted from the creek for agricultural irrigation and municipal water supplies. Other relative cool reaches included the uppermost reaches of Salt Creek and Philpot Creek.

The lowermost reaches of Salt Creek and Tule Creek had huge inter-annual differences, with up to 10 °C difference in MWMT temperatures. Large inter-annual range at lower Salt Creek is partially attributable to the presence of two sites within the reach (Salt Cr at Waterworks and Salt Cr at Tule Cr Rd Br). Salt Cr at Tule Cr Rd Br (Joshua Smith, pers. comm.) influenced by groundwater inflows, which resulted in cool MWMT temperatures in 2012 and 2013 (though not in 2010, 2011, or 2015). The streamflow at Tule Creek confluence typically becomes subsurface so in the driest years the stream temperatures likely cooled due to the influence of groundwater. Tule and Salt creeks also are among the streams in the SFTR with the highest percentage of their summer flows diverted.

3.4.5.2 DATA GAPS

No stream temperature data have been collected within many steelhead-bearing tributaries, listed here from downstream to upstream (asterisk indicates some segments of creek have moderate or high intrinsic potential for juvenile coho salmon): West Fork Tule Creek*, East Fork Tule Creek*, North Fork Philpot Creek*, Dobbins Gulch* (tributary to Salt Creek), several tributaries at the headwaters of Salt Creek, Kingsbury Gulch*, Donaldson Creek (tributary to Big Creek), Little Barker Creek*, Duncan Creek* (tributary to Summit Creek), South Fork Duncan Creek*, Devils Gulch (tributary to Summit Creek), Shock Creek*, and Gardner Gulch (tributary to Shock Creek). Based on property ownership (preference to public) and presence of moderate/high intrinsic potential for coho salmon, high-priority streams to collect temperature data would be West Fork Tule Creek, Kingsbury Gulch, and to a lesser extent North Fork Philpot Creek. Other priorities for additional monitoring would include: 1) reaches with high intrinsic potential for coho juveniles on Salt Creek upstream of the uppermost temperature site (Salt Creek at USFS Campground) where temperatures are likely somewhat cooler than at the campground, and 2) lower reach of Ditch Gulch (tributary to Salt Creek) between its confluence with Salt Creek and the barrier approximately 0.75 upstream of the confluence.

[26] The site is actually located approximately 0.25 miles upstream of a natural total barrier, but that distance is short enough so that temperatures below the barrier are likely to be similar.

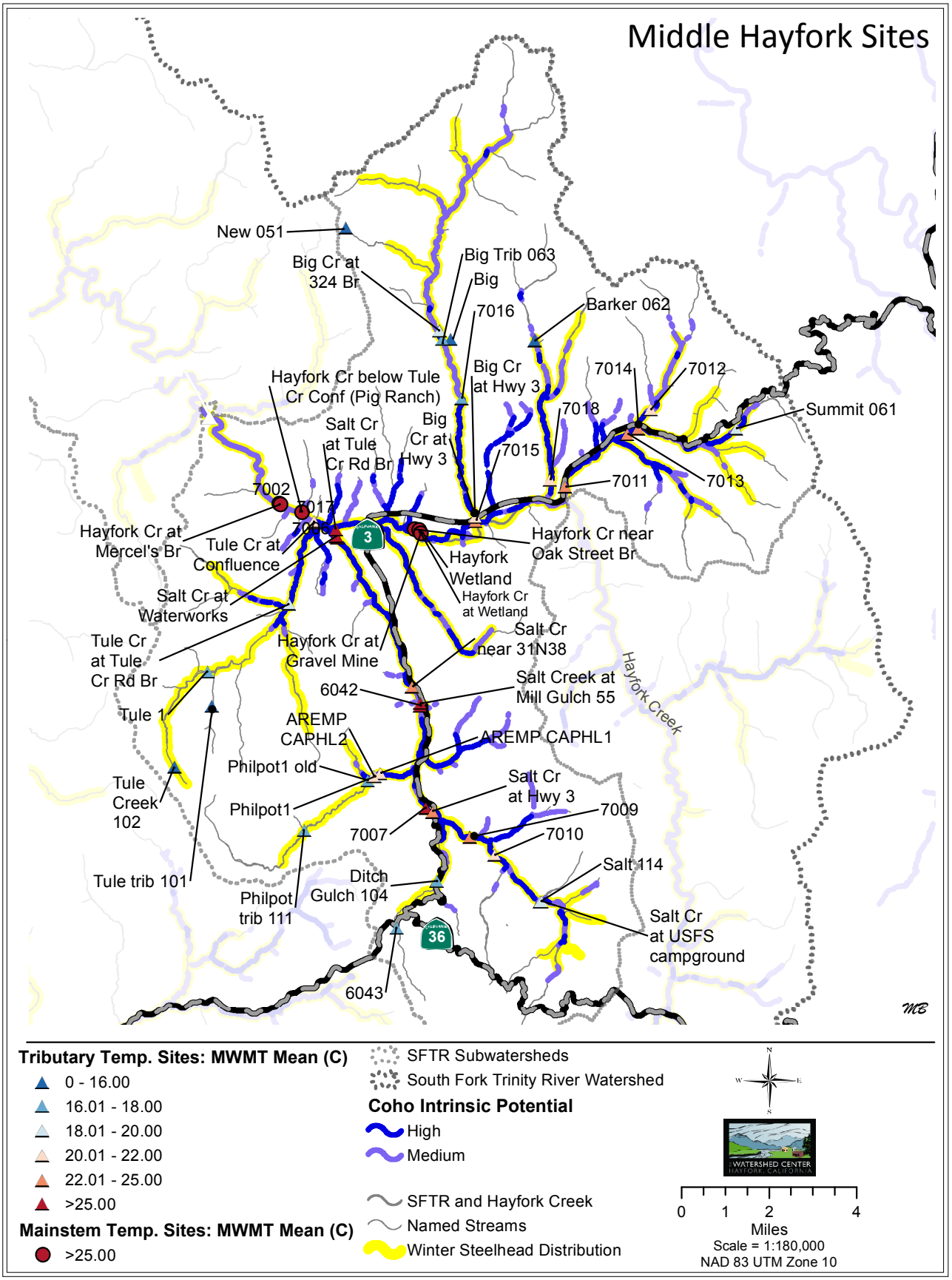

Figure 41. Map showing stream temperature monitoring sites in the Middle Hayfork Creek watershed. Sites and reaches are color-coded by mean MWMT values according to the salmonid suitability categories in Table 2, with values calculated as the mean MWMT across all years (1989-2015). Winter steelhead distribution (CDFW 2012b) is shown to indicate habitats accessible to anadromous salmonids. Coho salmon intrinsic potential (NMFS 2014) indicates stream segments where a GIS model predicted that physical attributes (e.g., gradient) may be favorable for coho salmon.

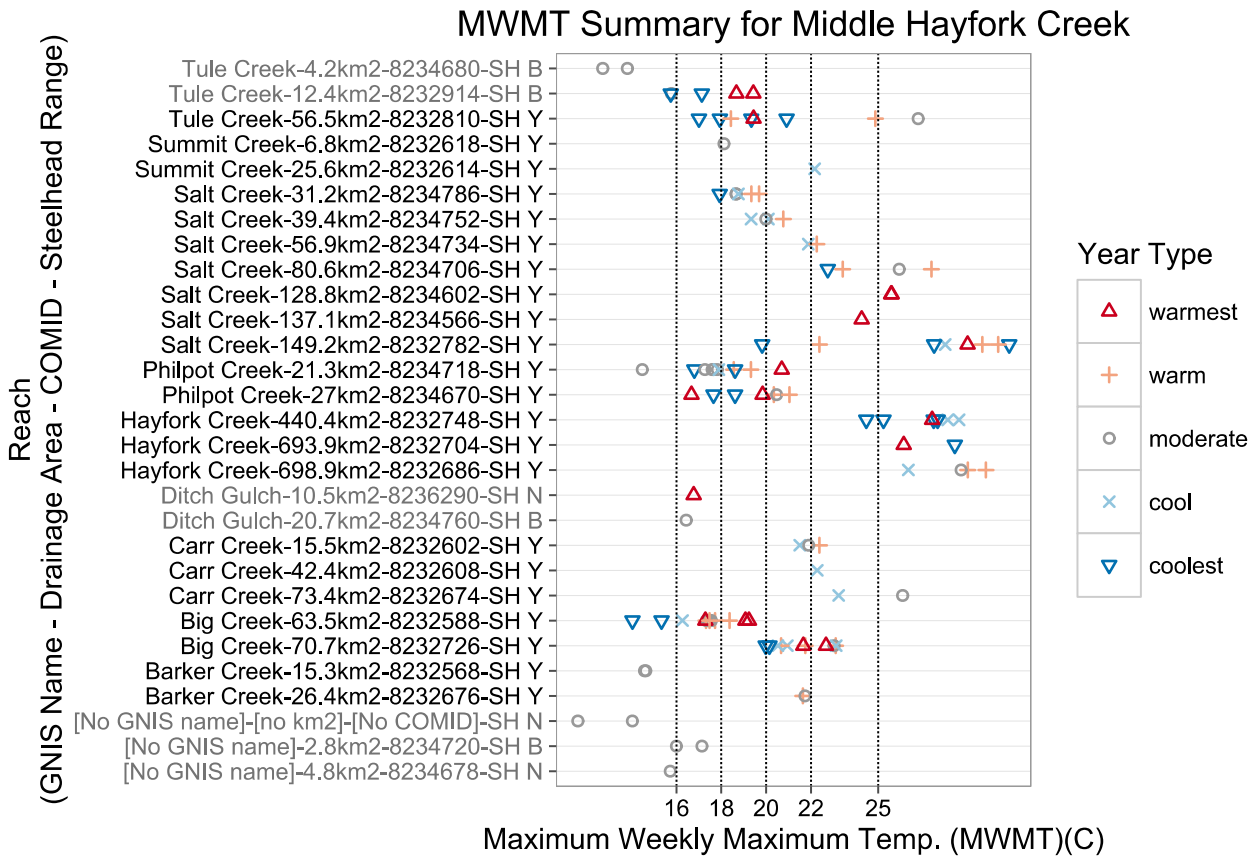

Figure 42. Reach-level summary of stream temperatures measured at sites within the Middle Hayfork Creek watershed. Each point is the MWMT for one year, site, and source entity. Reaches are sorted first by official stream name (U.S. Geological Survey Geographic Names Information System, GNIS), then by drainage area at downstream end of reach (in units of km^2), then by whether or not sites are located within the California Department of Fish and Wildlife's winter steelhead distribution. Reach names within steelhead distribution ("SH Y") are colored black, while other reaches are colored gray ("SH B" = site is designated as within winter steelhead range, but is upstream from a total fish passage barrier, "SH N" = upstream of steelhead range). Symbols for MWMT values are colored according to year type (see section 0 for details). Vertical gridlines correspond to the MWMT salmonid suitability categories in Table 2.

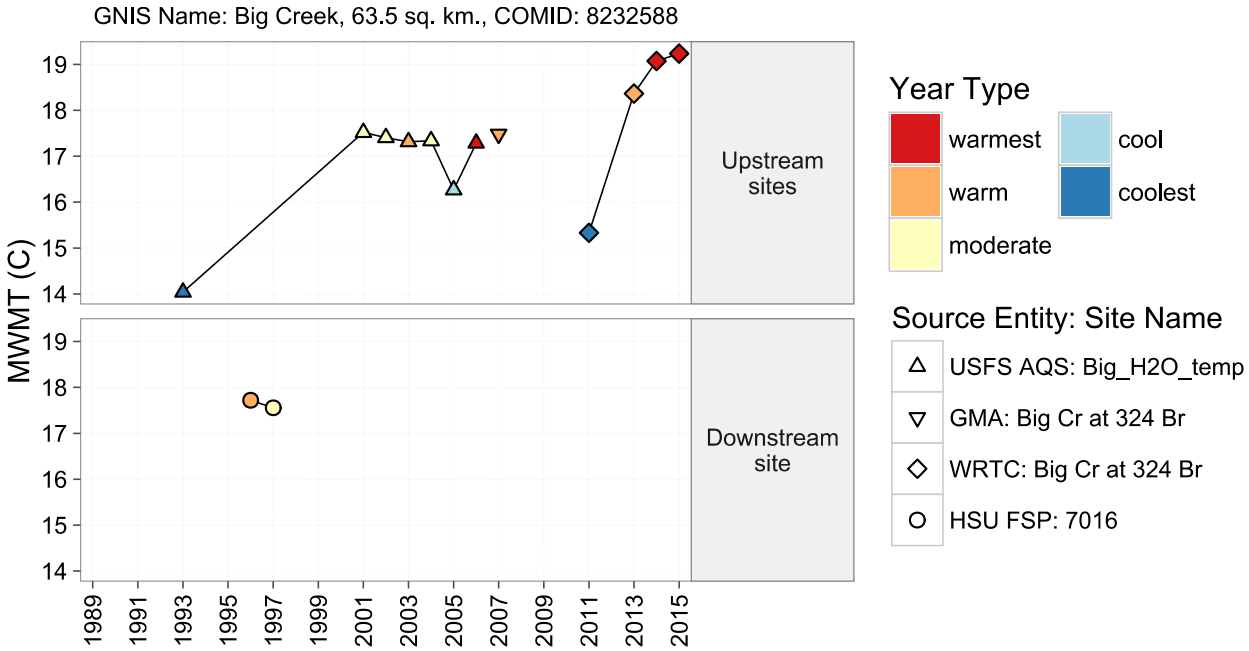

Figure 43. Time series of measured MWMT stream temperatures for sites in the upper reach of Big Creek (COMID 8232588). The reach is divided up into two sections, listed in panels according to order of flow (upstream on top). Each point is one year, site, and source entity. Each site is shown as a unique symbol shape, which is then colored by MWMT according to year type (see section 0 for details).

3.4.6 UPPER HAYFORK CREEK

3.4.6.1 STREAM TEMPERATURE SUMMARY

Within the Upper Hayfork Creek subwatershed, temperature data are available for reaches of ten tributaries (Bridge Gulch, East Fork Hayfork Creek, Potato Creek [tributary to East Fork Hayfork Creek], North Fork East Fork Hayfork Creek, Shiell Gulch, Wilson Creek, Hall City Creek, Goods Creek, Dubakella Creek, and West Fork Hayfork Creek) that are accessible to anadromous fish, plus the mainstem Hayfork Creek (Figure 44, Figure 45). Streams with temperatures not exceeding 18.0 °C include Wilson Creek, Hall City Creek, Goods Creek, Bridge Gulch, and West Fork Hayfork Creek (does not have a GNIS name, but is COMID 8235048), although some of those sites were not monitored in the warmest years. MWMT temperatures in Potato Creek were less than 18 in a few years, but typically ranged from 18-21 °C. Hayfork Creek warmed between its headwaters and Arnold Bridge, the most downstream site within the Upper Hayfork Creek subwatershed. Temperatures were generally lower in the East Fork of Hayfork Creek than in the mainstem of Hayfork Creek.

3.4.6.2 DATA GAPS

The only steelhead-bearing tributaries without temperature data are the headwaters of the East Fork of Hayfork Creek and the headwaters of Hayfork Creek upstream of the confluence with the West Fork Hayfork Creek, both of which have some segments with high intrinsic potential for juvenile coho salmon.

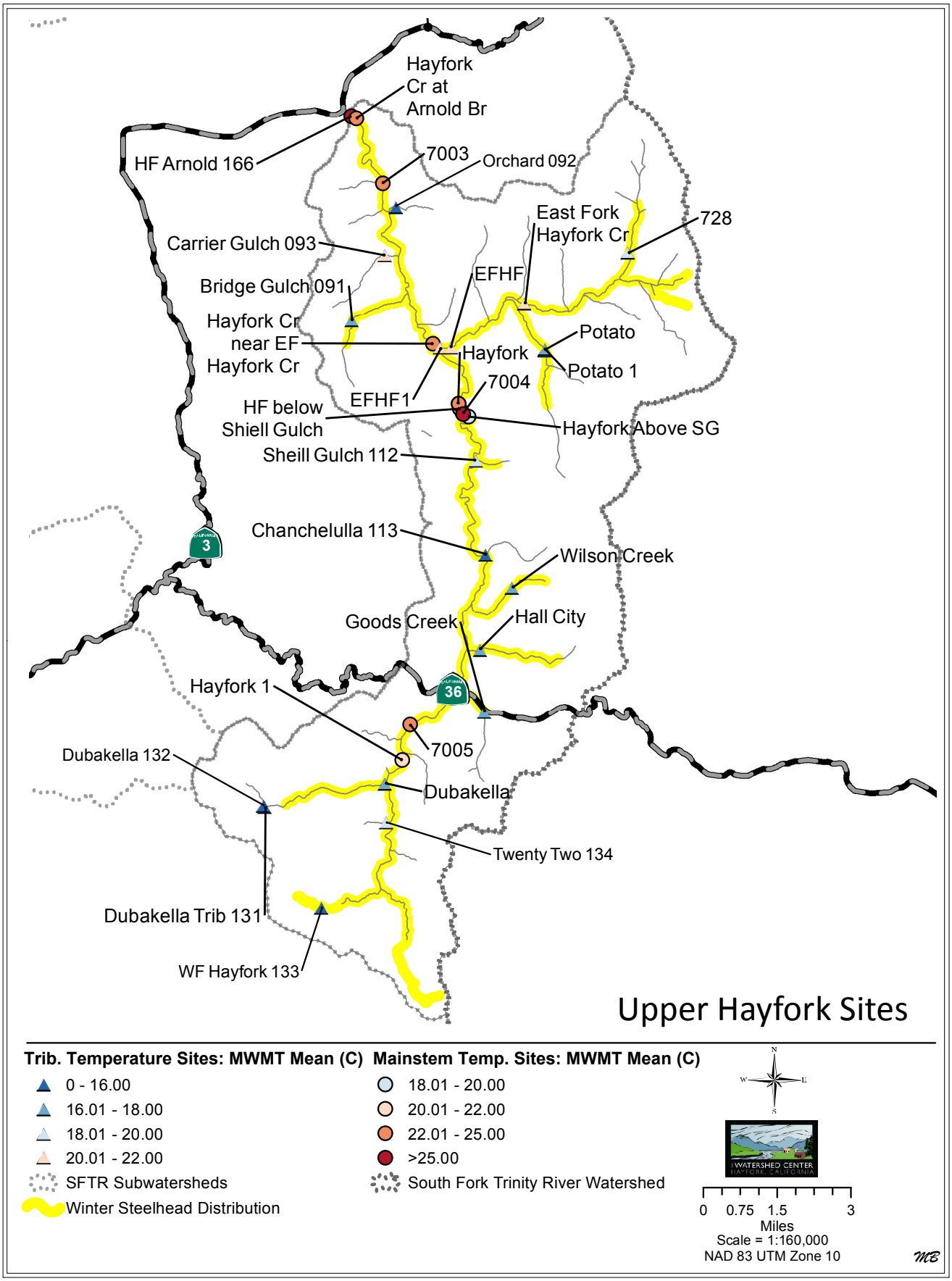

Figure 44. Map showing stream temperature monitoring sites in the Upper Hayfork Creek subwatershed. Sites and reaches are color-coded by mean MWMT values according to the salmonid suitability categories in Table 2, with values calculated as the mean MWMT across all years (1989-2015). Winter steelhead distribution (CDFW 2012b) is shown to indicate habitats accessible to anadromous salmonids.

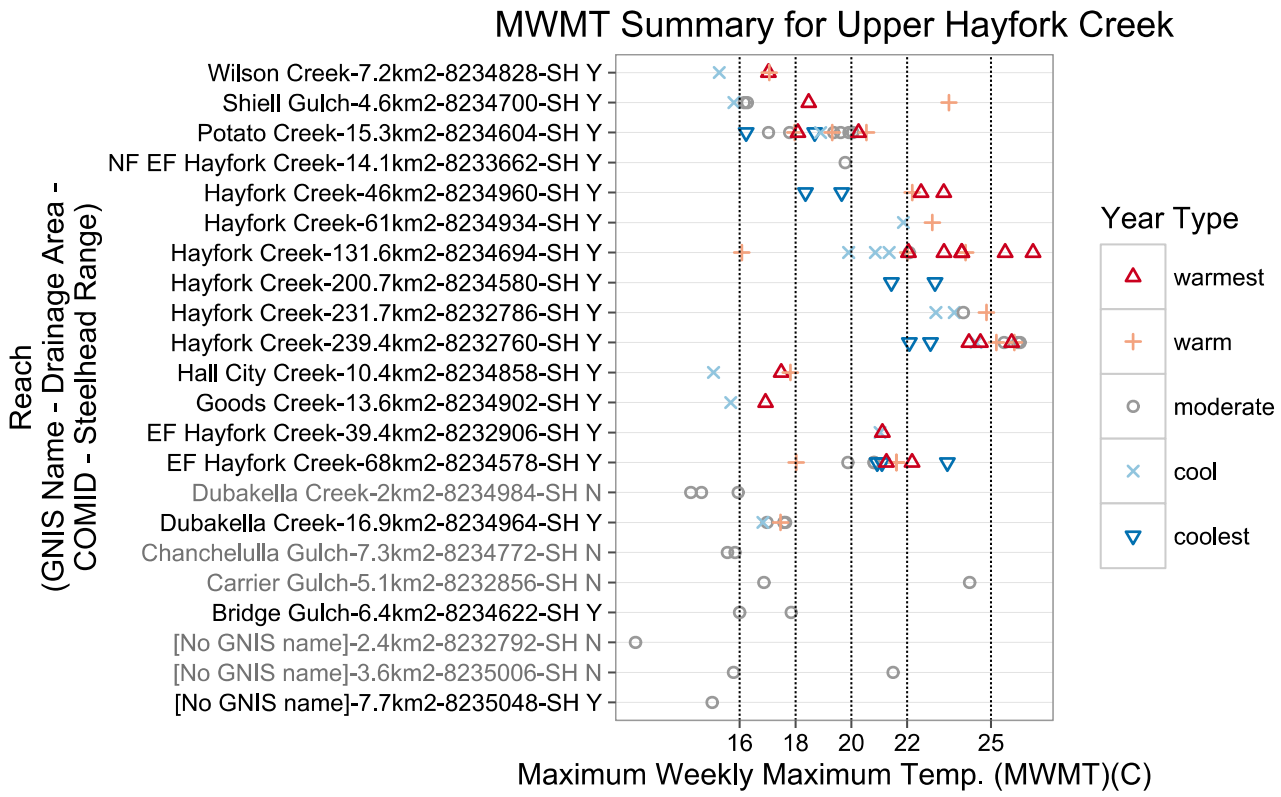

Figure 45. Reach-level summary of stream temperatures measured at sites within the Upper Hayfork Creek subwatershed. Each point is the MWMT for one year, site, and source entity. Reaches are sorted first by official stream name (U.S. Geological Survey Geographic Names Information System, GNIS), then by drainage area at downstream end of reach (in units of km^2), then by whether or not sites are located within the California Department of Fish and Wildlife's winter steelhead distribution. Reach names within steelhead distribution ("SH Y") are colored black, while other reaches are colored gray ("SH B" = site is designated as within winter steelhead range, but is upstream from a total fish passage barrier, "SH N" = upstream of steelhead range). Symbols for MWMT values are colored according to year type (see section 0 for details). Vertical gridlines correspond to the MWMT salmonid suitability categories in Table 2.

3.5 NORWEST MODEL RESULTS

As discussed in Section 1.2 above, the U.S. Forest Service's Rocky Mountain Research Lab's (RMRL) NorWeST project completed a spatial stream network temperature model for Northwest California in 2015. Model scenarios included current conditions (1993-2013) as well as several climate change scenarios. The model results indicate that climate change will warm streams in the South Fork Trinity River watershed and reduce the area of coldwater refuge (Figure 11).

The NorWeST model appears to substantially underestimate temperatures in Hayfork Creek within the Hayfork Valley and therefore does not reproduce the complex longitudinal (i.e., upstream to downstream) pattern of temperatures within Hayfork Creek, where temperatures are cooler within the Hayfork Creek Canyon, as discussed in Section 3.33.3 above. The likely reasons for this are that the model does not account for water diversions, and the stream temperature data used for model calibration within the South Fork Trinity River watershed were almost solely from the USFS, which does not have any sites within Hayfork Valley. Even without accounting for water diversions, if the model inputs had included temperature data from sites within Hayfork Valley, then the accuracy of predicted temperatures within the Hayfork Valley would likely have been improved due to the model's unique feature of explicitly incorporating spatial auto-correlation. As noted in Section 1.2 above, the RMRL will be re-running the NorWeST model in fall 2016 using a more complete dataset of stream temperature data for calibration, which should remedy the underestimation of temperatures in Hayfork Valley.

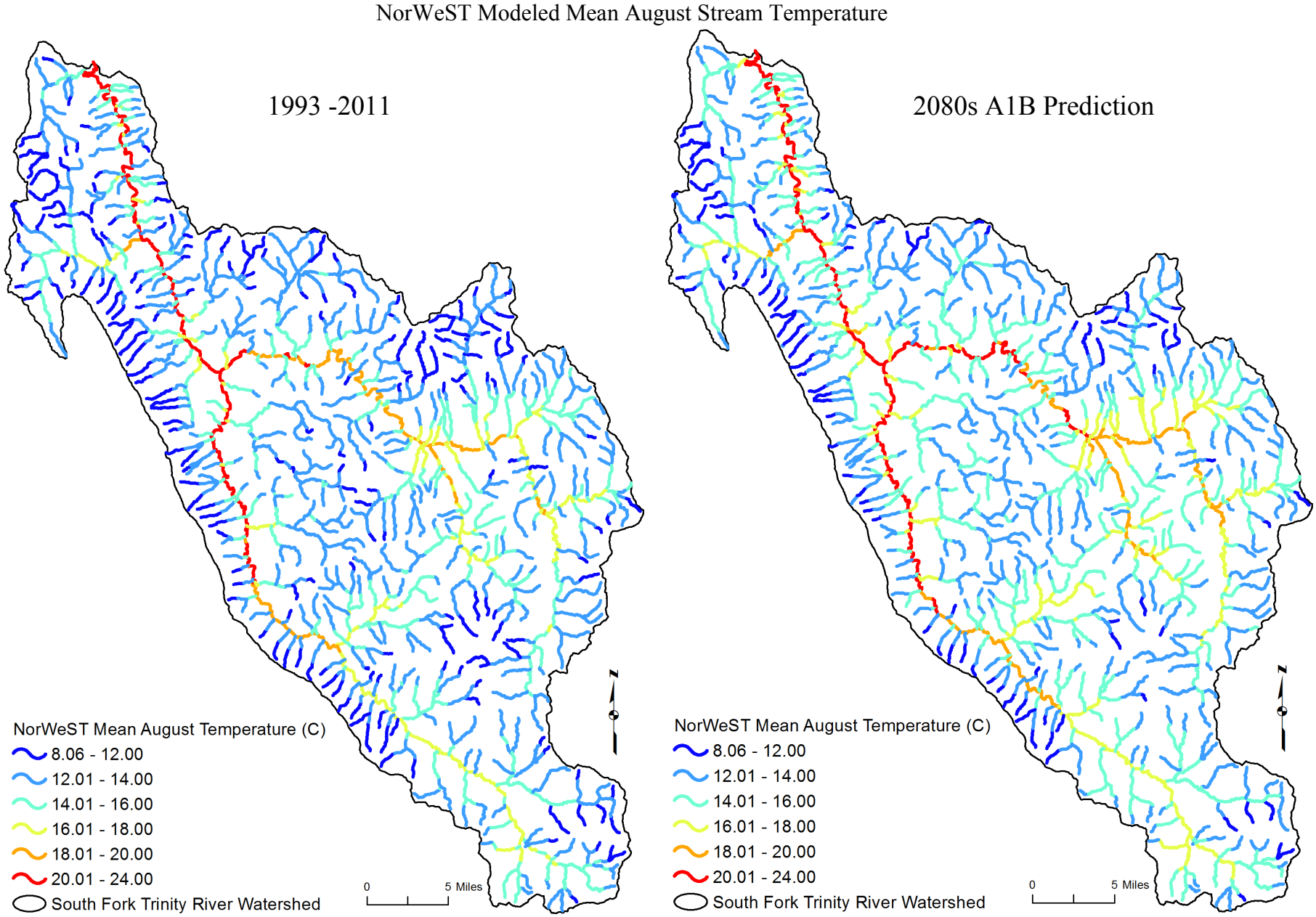

Figure 46. Comparison of NorWeST spatial stream network model predictions for mean August stream temperature in the South Fork Trinity River watershed for 1993-2013 and a future scenario based on global climate model ensemble averages that represents the A1B warming trajectory for 2080s (2070-2099).

4 RECOMMENDATIONS FOR FUTURE MONITORING

Data gaps for each watershed are discussed above in sections 3.4.1.2, 3.4.2.2, 3.4.3.2, 3.4.4.2, 3.4.5.2, and 3.4.6.2. The highest priority for collecting stream temperature data at additional sites would be streams that have intrinsic potential for juvenile coho salmon but no temperature data (Table 4).

Table 4. Recommended additional sites for collection of stream temperature data in the South Fork Trinity River (SFTR) watershed.

Location(s)	Watershed	Justification
Big Creek, Mill Creek, and Kerlin Creek	Lower SFTR	No data in any year 1989-2015, but has intrinsic potential for coho salmon.
[None]	Middle SFTR	There are some un-monitored streams that are accessible to anadromous fish, but the length of habitat is limited by natural barriers and/or small private parcels that make watershed protection/restoration difficult.
SFTR below confluence with East Fork SFTR	Upper SFTR	For a period of one to two years, re-occupy the "SFT_Bridge_33_H20_temp" site that was monitored from 1989 to 2007 (Figure 35), so a crosswalk can be developed to the currently monitored site on the SFTR upstream of the EF SFTR confluence (Figure 36). Presently within the SFTR watershed, spring Chinook primarily utilize the mainstem between Hitchcock Creek and the East Fork of the SFTR for over-summering and spawning (Foster Wheeler Environmental Corporation 2001).
[None]	Lower Hayfork Creek	There are some un-monitored streams that are accessible to anadromous fish, but the length of habitat is relatively short and none has high intrinsic potential for coho juveniles.
West Fork Tule Creek, Kingsbury Gulch, and North Fork Philpot Creek	Middle Hayfork Creek	No data for those streams in any year 1989-2015, but has moderate/high intrinsic potential habitat for coho salmon that is located on public lands. Access of anadromous fish to Kingsbury Gulch is potentially limited by a long culvert under the airport runway.
Salt Creek near confluence with West Fork Salt Creek	Middle Hayfork Creek	Moderate/high intrinsic potential habitat for coho salmon that is located on public lands. Existing data approximately one mile downstream (at campground) suggests stream temperatures are slightly too high for juvenile coho and it is unknown how cool temperatures are upstream.
Ditch Gulch (tributary to Salt Creek) at USFS property boundary	Middle Hayfork Creek	Only one-third mile between natural total barrier and USFS property boundary, but has high intrinsic potential habitat for coho salmon that is located on public lands. MWMT was 16.4 °C in 2002 at site approximately 1.3 mile upstream (above barrier), but it is unknown how much the stream warms downstream.
East Fork Hayfork Creek headwaters, Hayfork Creek headwaters	Upper Hayfork Creek	High intrinsic potential habitat for coho salmon that is located on public lands. High probability of cold water.

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6 ACKNOWLEDGMENTS

Countless people from many different entities have contributed to collection and compilation of the stream temperature data included in this report. We thank here only those people with whom we have directly interacted. Joshua Smith of the Watershed Research and Training Center (WRTC) coordinated the South Fork Trinity River water temperature monitoring and managed this project. Marie Buell of the WRTC made many of the maps in this report. Samantha Chilcote provided helpful comments on an early draft of this report, including suggestions for analytical approach. Callie McConnell of the U.S. Forest Service (USFS) provided data from the USFS AqS database. Eric Wiseman answered questions about Shasta Trinity National Forest's data from recent years. Rich Fadness at North Coast Regional Water Quality Control Board assisted by archiving and retrieving the WRTC's data, and loaning temperature probes for 2010-2015. Stuart Farber located Timber Products Company data from late 1990s. Daniel Isaak, Sherry Wollrab, Gwynne Chandler, and David Nagel of the USFS provided information on the NorWeST model and tips on snapping the temperature sites to the GIS streams network. Douglas Chow of the National Marine Fisheries Service created Figure 2.

APPENDIX A: LIST OF TEMPERATURE MONITORING SITES

Figure A1. Complete list of stream temperature sites in the South Fork Trinity River watershed. There is one row for each site. Key to abbreviations and other explanations: Source Entity = entity that provided temperature data, see Table 1 for key to abbreviations; Site Name = the combination of Site Name and Source Entity is a unique identifier for the site; Site Description = supplemental information regarding site location, sometimes identical to the Site Name; Original Latitude/ Longitude NAD83 = original spatial coordinates (i.e., before snapping to NSI stream network) for the temperature site, in units of decimal degrees with the North American Datum of 1983; Elev (m) = elevation associated with site coordinates in the National Hydrologic Dataset Plus (NHDplus) digital elevation model; Drain. Area = drainage area at downstream end of reach in NSI stream network, in units of km^2 as provided by NSI stream network; NSI Reach COMID = Common identifier code for the reach in National Stream Internet stream network that a temperature site was snapped to (if blank, reach does not exist in NSI stream network); NSI Reach GNIS ID/Name = official U.S. Geological Survey Geographic Names Information System name and identifier for stream in NSI stream network (if blank, stream has no GNIS name and/or reach does not exist in NSI stream network); Watershed = watershed corresponding to Figure 1 (prefixes: L = Lower, M = Middle, U = Upper, suffixes: SF = South Fork Trinity, HF = Hayfork); and Yrs = number of years with any (not necessarily enough to calculate annual statistics) stream temperature data.

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
CDFW	SF Trinity R above Bramlet	SF Trinity R above Bramlet	40.255825	-123.143851	869	216.6	8236310	249724	SF Trinity R	USF	1
CDFW	SF Trinity R above Butter Cr	SF Trinity R above Butter Cr	40.570400	-123.444100	430	776.3	8232646	249724	SF Trinity R	MSF	1
CDFW	SF Trinity R above Hitchcock Cr	SF Trinity R above Hitchcock Cr	40.544800	-123.454600	455	752.1	8232772	249724	SF Trinity R	MSF	1
CDFW	SF Trinity R at Forest Glen footbridge	SF Trinity R at Forest Glen footbridge	40.361415	-123.306334	715	407.6	8234970	249724	SF Trinity R	USF	1
CDFW	SF Trinity R at Forest Glen Hell's Gate	SF Trinity R at Forest Glen Hell's Gate	40.369422	-123.315369	709	531.5	8234948	249724	SF Trinity R	MSF	1
CDFW	SF Trinity R at Low Bridge	SF Trinity R at Low Bridge	40.834397	-123.567309	170	2316.1	8231994	249724	SF Trinity R	LSF	1
CDFW	SF Trinity R at Todd Ranch	SF Trinity R at Todd Ranch	40.800656	-123.556916	206	2299.4	8232030	249724	SF Trinity R	LSF	1
CDFW	SF Trinity R below Surprise Cr	SF Trinity R below Surprise Cr	40.787916	-123.558743	227	2273.9	8232048	249724	SF Trinity R	LSF	1
CDFW	SF Trinity R near Big Rock	SF Trinity R near Big Rock	40.557000	-123.461100	439	765.3	8232690	249724	SF Trinity R	MSF	1
GDRC	10000083	Cold_Springs	40.548779	-123.478565	811	3.5	8232740	266585	Cold Springs Cr	MSF	12
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	716	4.0	8232678	261971	Johnson Cr	MSF	11
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	509	32.4	8232544	264627	Pelletreau Cr	LSF	13
GDRC	10000259	Pelletreau_(98)	40.609646	-123.486956	477	32.4	8232544	264627	Pelletreau Cr	LSF	2
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	518	6.1	8233494			LSF	12
GDRC	10000261	Pelletreau_(Trib_2)	40.583659	-123.487484	620	5.2	8233502			LSF	5
GMA	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	839	63.5	8232588	256912	Big Cr	MHF	1
GMA	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	720	70.7	8232726	256912	Big Cr	MHF	1
HSU FSP	4032	MOSQTO96/MOSQTO97/MOSQTO98	40.719849	-123.620595	520	38.9	8232132	229110	Mosquito Cr	LSF	
HSU FSP	4033	GRMOSQ95	40.718861	-123.619429	513	107.9	8232168	224657	Grouse Cr	LSF	
HSU FSP	4034	GRSTR94/GRSTR95/GRSTR96/GRSTR97/GRSTR98	40.718317	-123.574023	385	138.3	8232156	224657	Grouse Cr	LSF	
HSU FSP	4035	GRODEV94/GRODEV95/GRODEV96/GRODEV98	40.722047	-123.565544	383	146.7	8232122	224657	Grouse Cr	LSF	
HSU FSP	4036	GROMO96/GROMO97	40.732773	-123.544635	279	146.7	8232122	224657	Grouse Cr	LSF	1
HSU FSP	4037	SFKGRO95/SFKGRO96/SFKGRO97/SFKGRO98	40.733887	-123.544239	269	2237.6	8232114	249724	SF Trinity R	LSF	
HSU FSP	4038	SFTUPR94/SFTUPR95/SFTUPR96/SFTUPR97	40.722377	-123.525665	290	2090.5	8232128	249724	SF Trinity R	LSF	5
HSU FSP	4039	UNDMO93	40.719621	-123.522252	302	11.4	8232134	236779	Underwood Cr	LSF	1
HSU FSP	6001	MINERS CREEK/SITE_7	40.638167	-123.322116	583	33.6	8232424	263676	Miners Cr	LHF	1
HSU FSP	6002	S FK TRINITY RIVER/SITE_23	40.378251	-123.333707	694	539.1	8234926	249724	SF Trinity R	MSF	1
HSU FSP	6003	S FK TRINITY RIVER/SITE_26.5	40.573833	-123.443944	426	872.6	8232634	249724	SF Trinity R	MSF	
HSU FSP	6004	S FK TRINITY RIVER/SITE_27	40.668405	-123.502024	382	2034.7	8233476	249724	SF Trinity R	LSF	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	1222	16.4	8235232			USF	
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	898	110.3	8235166	249724	SF Trinity R	USF	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	435	94.7	8232658	257775	Butter Cr	MSF	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
HSU FSP	6008	E FK S FK TRINITY RIVER/SITE_36	40.237169	-123.078807	957	49.2	8235160	259708	EF SF Trinity R	USF	
HSU FSP	6009	SMOKY CREEK/SITE_37	40.305320	-123.235854	770	44.6	8235080	234734	Smoky Cr	USF	
HSU FSP	6010	S FK TRINITY RIVER/SITE_38	40.303396	-123.236370	772	298.1	8235092	249724	SF Trinity R	USF	4
HSU FSP	6012	ELTAPOM CREEK/SITE_91	40.692813	-123.460137	828	27.9	8232264	259880	Eltapom Cr	LSF	1
HSU FSP	6013	PELLETREAU CREEK/SITE_94	40.616514	-123.477376	403	32.4	8232544	264627	Pelletreau Cr	LSF	
HSU FSP	6014	S FK TRINITY RIVER/SITE_110	40.475645	-123.418868	510	636.0	8234666	249724	SF Trinity R	MSF	1
HSU FSP	6015	TULE CREEK/SITE_113	40.501791	-123.261071	979	12.4	8232914	268451	Tule Cr	MHF	
HSU FSP	6020	PLUMMER CREEK/SITE_134	40.475586	-123.416056	527	65.4	8234638	234486	Plummer Cr	MSF	
HSU FSP	6021	RATTLESNAKE CREEK/SITE_18	40.370554	-123.313000	707	121.1	8234942	265207	Rattlesnake Cr	MSF	
HSU FSP	6022	ELTAPOM CREEK/SITE_92	40.662428	-123.492575	388	50.8	8232336	259880	Eltapom Cr	LSF	
HSU FSP	6023	OLSEN CREEK/SITE_12	40.649264	-123.436347	742	9.3	8232376	264349	Olsen Cr	LHF	
HSU FSP	6024	OLSEN CREEK/SITE_13	40.629328	-123.444523	445	17.5	8232498	264349	Olsen Cr	LHF	
HSU FSP	6025	RATTLESNAKE CREEK/SITE_17	40.375540	-123.300835	746	107.6	8234928	265207	Rattlesnake Cr	MSF	1
HSU FSP	6026	CAVE CREEK/SITE_21	40.382617	-123.337469	703	5.5	8234908	258093	Cave Cr	MSF	
HSU FSP	6027	S FK TRINITY RIVER/SITE_22	40.380813	-123.337537	685	544.9	8234910	249724	SF Trinity R	MSF	
HSU FSP	6028	POWELL CREEK/SITE_31	40.169497	-123.025748	1214	9.6	8235250	249724	SF Trinity R	USF	
HSU FSP	6029	BLOSSOM CABIN CREEK/SITE_32	40.186821	-123.049914	1283	5.2	8236322			USF	
HSU FSP	6030	HAYFORK CREEK/SITE_5	40.616679	-123.447831	393	1001.9	8232510	266799	Hayfork Cr	LHF	1
HSU FSP	6031	BEAR CREEK/SITE_6	40.605150	-123.283798	632	19.7	8232538	256646	Bear Cr	LHF	
HSU FSP	6032	FLUME GULCH/SITE_16	40.376301	-123.306203	766	3.6	8234930			MSF	
HSU FSP	6034	HAYFORK CREEK/SITE_42	40.605698	-123.286251	620	790.5	8232540	266799	Hayfork Cr	LHF	
HSU FSP	6035	RUSCH CREEK/SITE_43	40.584773	-123.266745	680	21.1	8232610	265675	Rusch Cr	LHF	
HSU FSP	6036	BIG CREEK/SITE_44	40.597892	-123.152178	808	63.5	8232588	256912	Big Cr	MHF	
HSU FSP	6041	INDIAN VALLEY CREEK/SITE_54	40.516618	-123.328804	1201	12.6	8232836			MSF	
HSU FSP	6042	SALT CREEK/SITE_55	40.490358	-123.167536	749	128.8	8234602	265769	Salt Cr	MHF	1
HSU FSP	6043	DITCH GULCH/SITE_56	40.416968	-123.178050	1087	10.5	8236290	259397	Ditch Gulch	MHF	1
HSU FSP	6044	HAYFORK CREEK/SITE_58	40.472296	-123.061398	836	131.6	8234694	266799	Hayfork Cr	UHF	
HSU FSP	6045	HAYFORK CREEK/SITE_60	40.572826	-123.238454	677	710.1	8233504	266799	Hayfork Cr	MHF	
HSU FSP	6060	PROSPECT CREEK/SITE_83	40.279866	-123.113182	1121	10.9	8235108	267146	Prospect Cr	USF	1
HSU FSP	6062	SALT CREEK/SITE_90	40.425112	-123.110923	859	24.8	8234790	265769	Salt Cr	MHF	
HSU FSP	6072	PLUMMER CREEK/SITE_57	40.478177	-123.386717	587	48.7	8234626	234486	Plummer Cr	MSF	
HSU FSP	7001	SITE01	40.596817	-123.281130	630	767.8	8232554	266799	Hayfork Cr	LHF	3
HSU FSP	7002	SITE02	40.557269	-123.229418	686	698.9	8232686	266799	Hayfork Cr	MHF	3
HSU FSP	7003	SITE03	40.537745	-123.090818	771	231.7	8232786	266799	Hayfork Cr	UHF	4
HSU FSP	7004	SITE04	40.469986	-123.059775	844	131.6	8234694	266799	Hayfork Cr	UHF	2
HSU FSP	7005	SITE05	40.378315	-123.079965	1066	61.0	8234934	266799	Hayfork Cr	UHF	2
HSU FSP	7006	SITE11	40.546101	-123.203927	697	149.2	8232782	265769	Salt Cr	MHF	3
HSU FSP	7007	SITE12	40.456739	-123.165319	773	80.6	8234706	265769	Salt Cr	MHF	2
HSU FSP	7009	SITE14	40.446972	-123.145999	793	56.9	8234734	265769	Salt Cr	MHF	2
HSU FSP	7010	SITE15	40.440908	-123.135647	808	39.4	8234752	265769	Salt Cr	MHF	4
HSU FSP	7011	SITE21	40.563013	-123.104833	750	73.4	8232674	257996	Carr Cr	MHF	2
HSU FSP	7012	SITE22	40.588657	-123.067817	815	15.5	8232602	257996	Carr Cr	MHF	3
HSU FSP	7013	SITE23	40.580723	-123.077864	786	42.4	8232608	257996	Carr Cr	MHF	1
HSU FSP	7014	SITE24	40.582559	-123.073237	791	25.6	8232614	267918	Summit Cr	MHF	1
HSU FSP	7015	SITE31	40.551784	-123.143747	718	70.7	8232726	256912	Big Cr	MHF	4
HSU FSP	7016	SITE32	40.592354	-123.149978	789	63.5	8232588	256912	Big Cr	MHF	2
HSU FSP	7017	SITE41	40.551267	-123.214362	690	56.5	8232810	268451	Tule Cr	MHF	2
HSU FSP	7018	SITE51	40.565250	-123.111458	757	26.4	8232676	256518	Barker Cr	MHF	2

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
HSU FSP	728	201152	40.517215	-122.995823	1000	14.1	8233662	264192	NF EF Hayfork Cr	UHF	1
HSU FSP	986	PELLETREAU/PELLET1	40.602663	-123.490659	515	32.4	8232544	264627	Pelletreau Cr	LSF	1
HSU FSP	987	PELLETREAU TRIB./PELLETR1	40.600758	-123.492006	518	6.1	8233494			LSF	1
TPC	TBG3	Big Creek	40.649903	-123.517151	584	21.6	8233480	256913	Big Cr	LSF	1
TPC	TCB1	Cable Creek	40.319450	-123.271552	783	10.2	8235068	257808	Cable Cr	USF	1
TPC	TCH1	Charlton Creek	40.326078	-123.283004	771	3.3	8235076	258223	Charlton Cr	USF	1
TPC	TFR1	Farley Creek	40.349468	-123.305147	735	6.7	8235000	260051	Farley Cr	USF	1
TPC	TGC2	Lower Grouse Creek	40.718555	-123.573442	385	138.3	8232156	224657	Grouse Cr	LSF	1
USFS AQS	Alder_Thicket_152_H2O_Temp	Alder_Thicket_152_H2O_Temp	40.204552	-122.989852	1818		NA			USF	1
USFS AQS	AREMP CAGRS001	AREMP CAGRS001	40.616577	-123.448022	393	1001.9	8232510	266799	Hayfork Cr	LHF	
USFS AQS	AREMP CAINV001	AREMP CAINV001	40.570612	-123.438392	439	94.7	8232658	257775	Butter Cr	MSF	
USFS AQS	AREMP CANFH001	AREMP CANFH001	40.489209	-123.065552	815	68.0	8234578	222886	EF Hayfork Cr	UHF	
USFS AQS	AREMP CAPHL002	AREMP CAPHL002	40.467634	-123.186700	781	27.0	8234670	264684	Philpot Cr	MHF	
USFS AQS	AREMP CAUST001	AREMP CAUST001	40.304232	-123.236841	767	298.1	8235092	249724	SF Trinity R	USF	
USFS AQS	Barker_062_H2O_Temp	Barker_062_H2O_Temp	40.611446	-123.118353	894	15.3	8232568	256518	Barker Cr	MHF	2
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	620	19.7	8232538	256646	Bear Cr	LHF	10
USFS AQS	Bee_Tree_H2O_Temp	Bee_Tree_H2O_Temp	40.801627	-123.639572	1238	1.6	8232034	256786	Bee Tree Flat	LSF	2
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	836	63.5	8232588	256912	Big Cr	MHF	7
USFS AQS	Big_trib_063_H2O_Temp	Big_trib_063_H2O_Temp	40.611950	-123.154819	899		NA			MHF	1
USFS AQS	BlossomCabin_H2O_temp	BlossomCabin_H2O_temp	40.186660	-123.051963	1229	5.2	8236322			USF	5
USFS AQS	Bridge_Gulch_091_H2O_Temp	Bridge_Gulch_091_H2O_Temp	40.497267	-123.102410	866	6.4	8234622	257454	Bridge Gulch	UHF	2
USFS AQS	Butter_074_H2O_Temp	Butter_074_H2O_Temp	40.573217	-123.335559	1097	14.3	8232694	257775	Butter Cr	MSF	1
USFS AQS	ButterCr_at_McCaslin_H2O_Temp	ButterCr_at_McCaslin_H2O_Temp	40.567227	-123.433624	456	94.7	8232658	257775	Butter Cr	MSF	2
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	436	94.7	8232658	257775	Butter Cr	MSF	11
USFS AQS	Carrier_Gulch_093_H2O_Temp	Carrier_Gulch_093_H2O_Temp	40.516485	-123.089763	817	5.1	8232856	258001	Carrier Gulch	UHF	2
USFS AQS	Cave_H2O_temp	Cave_H2O_temp	40.381303	-123.336659	697	5.5	8234908	258093	Cave Cr	MSF	4
USFS AQS	Chanchelulla_113_H2O_Temp	Chanchelulla_113_H2O_Temp	40.428448	-123.050723	985	7.3	8234772	220902	Chanchelulla Gulch	UHF	2
USFS AQS	Clark_H2O_Temp	Clark_H2O_Temp	40.726799	-123.418708	1293		NA			LSF	1
USFS AQS	Cold_Springs_082_H2O_Temp	Cold_Springs_082_H2O_Temp	40.555334	-123.459737	440	7.3	8232710	266585	Cold Springs Cr	MSF	2
USFS AQS	Corral_trib_H2O_Temp	Corral_trib_H2O_Temp	40.699585	-123.354707	867		NA			LHF	1
USFS AQS	CorralCrUpper_H2O_Temp	CorralCrUpper_H2O_Temp	40.703245	-123.351491	868	27.0	8232200	258731	Corral Cr	LHF	1
USFS AQS	Coyote_094_H2O_Temp	Coyote_094_H2O_Temp	40.515123	-123.356627	1187	2.6	8232908	261775	Indian Valley Cr	MSF	1
USFS AQS	Dark_Canyon_151_H2O_Temp	Dark_Canyon_151_H2O_Temp	40.240692	-123.083911	970	7.4	8236316	259059	Dark Canyon Cr	USF	2
USFS AQS	Ditch_Gulch_104_H2O_Temp	Ditch_Gulch_104_H2O_Temp	40.432281	-123.160322	891	20.7	8234760	259397	Ditch Gulch	MHF	1
USFS AQS	Dubakella_132_H2O_Temp	Dubakella_132_H2O_Temp	40.354381	-123.136097	1361	2.0	8234984	259589	Dubakella Cr	UHF	2
USFS AQS	Dubakella_H2O_temp	Dubakella_H2O_temp	40.360987	-123.089469	1102	16.9	8234964	259589	Dubakella Cr	UHF	5
USFS AQS	Dubakella_trib_131_H2O_Temp	Dubakella_trib_131_H2O_Temp	40.354059	-123.135672	1361	2.0	8234984	259589	Dubakella Cr	UHF	1
USFS AQS	E_trib_Butter_073_H2O_Temp	E_trib_Butter_073_H2O_Temp	40.567511	-123.351249	1145	2.0	8232668			MSF	1
USFS AQS	E_Twin_122_H2O_Temp	E_Twin_122_H2O_Temp	40.381167	-123.227372	945	5.2	8234952			MSF	2
USFS AQS	East_Fork_141_H2O_Temp	East_Fork_141_H2O_Temp	40.244703	-123.003071	1441	2.3	8235148			USF	1
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	817	68.0	8234578	222886	EF Hayfork Cr	UHF	7
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	953	49.2	8235160	259708	EF SF Trinity R	USF	14
USFS AQS	Eltapom_N_trib_H2O_Temp	Eltapom_N_trib_H2O_Temp	40.681625	-123.453202	873	2.6	8232284			LSF	2
USFS AQS	Eltapom_S_trib_H2O_Temp	Eltapom_S_trib_H2O_Temp	40.677769	-123.459862	702		NA			LSF	1
USFS AQS	First_011_H2O_Temp	First_011_H2O_Temp	40.819869	-123.543371	705		NA			LSF	1
USFS AQS	Flume Creek 16 H2O temp	Flume Creek 16 H2O temp	40.380380	-123.304439	887		NA			MSF	2
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	698	6.2	8235008	260598	Glen Cr	MSF	7
USFS AQS	GoodsCreek_H2O_Temp	GoodsCreek_H2O_Temp	40.382065	-123.051190	1053	13.6	8234902	224313	Goods Cr	UHF	2

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
USFS AQS	GRAMOS_H2O_temp	GRAMOS_H2O_temp	40.718240	-123.620269	514	64.2	8232148	224657	Grouse Cr	LSF	2
USFS AQS	Grapevine_H2O_Temp	Grapevine_H2O_Temp	40.703492	-123.538620	529	4.1	8232222	224448	Grapevine Cr	LSF	1
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	524	38.9	8232132	229110	Mosquito Cr	LSF	9
USFS AQS	GRODEV_H2O_temp	GRODEV_H2O_temp	40.721867	-123.564930	380	146.7	8232122	224657	Grouse Cr	LSF	4
USFS AQS	Grouse_nearMouth_H2O_temp	Grouse_nearMouth_H2O_temp	40.732481	-123.545223	288	146.7	8232122	224657	Grouse Cr	LSF	2
USFS AQS	Grouse_trib_H2O_Temp	Grouse_trib_H2O_Temp	40.720880	-123.559780	475		NA			LSF	1
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	387	138.3	8232156	224657	Grouse Cr	LSF	13
USFS AQS	H20_Temp_AREMP_CAPHL2	H20_Temp_AREMP_CAPHL2	40.466903	-123.187928	791	27.0	8234670	264684	Philpot Cr	MHF	1
USFS AQS	H2O_Temp_AREMP_CAGRS	H2O_Temp_AREMP_CAGRS	40.615696	-123.449384	394	1001.9	8232510	266799	Hayfork Cr	LHF	1
USFS AQS	H2O_Temp_AREMP_CAINV	H2O_Temp_AREMP_CAINV	40.570802	-123.441050	435	94.7	8232658	257775	Butter Cr	MSF	2
USFS AQS	H2O_Temp_AREMP_CAPHL1	H2O_Temp_AREMP_CAPHL1	40.467984	-123.185134	779	27.0	8234670	264684	Philpot Cr	MHF	1
USFS AQS	H2O_Temp_AREMP_CAUST	H2O_Temp_AREMP_CAUST	40.304239	-123.236852	767	298.1	8235092	249724	SF Trinity R	USF	1
USFS AQS	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	633	19.7	8232538	256646	Bear Cr	LHF	5
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	910	33.9	8232652	257775	Butter Cr	MSF	9
USFS AQS	H2O_temp_CDFW_106WER016	H2O_temp_CDFW_106WER016	40.489229	-123.028579	960	15.3	8234604	264992	Potato Cr	UHF	
USFS AQS	H2O_Temp_corral2	H2O_Temp_corral2	40.699956	-123.364420	819	56.5	8232248	258731	Corral Cr	LHF	5
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	481	93.8	8232458	258731	Corral Cr	LHF	6
USFS AQS	H2O_Temp_efhf1	H2O_Temp_efhf1	40.489218	-123.068251	810	68.0	8234578	222886	EF Hayfork Cr	UHF	5
USFS AQS	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	954	49.2	8235160	259708	EF SF Trinity R	USF	5
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	380	50.8	8232336	259880	Eltapom Cr	LSF	14
USFS AQS	H2O_Temp_eltapom2	H2O_Temp_eltapom2	40.699061	-123.435063	993	14.7	8232226	259880	Eltapom Cr	LSF	5
USFS AQS	H2O_Temp_hayfork1	H2O_Temp_hayfork1	40.367859	-123.083019	1080	46.0	8234960	266799	Hayfork Cr	UHF	5
USFS AQS	H2O_Temp_hayfork3	H2O_Temp_hayfork3	40.606898	-123.288818	618	790.5	8232540	266799	Hayfork Cr	LHF	4
USFS AQS	H2O_Temp_naufus1	H2O_Temp_naufus1	40.458775	-123.323291	1191	9.2	8234692	264008	Naufus Cr	MSF	5
USFS AQS	H2O_Temp_pelletreau1	H2O_Temp_pelletreau1	40.616923	-123.475954	400	32.4	8232544	264627	Pelletreau Cr	LSF	4
USFS AQS	H2O_Temp_philpot1	H2O_Temp_philpot1	40.467047	-123.187239	788	27.0	8234670	264684	Philpot Cr	MHF	5
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	795	21.3	8234718	264684	Philpot Cr	MHF	12
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	824	38.3	8234872	264984	Post Cr	MSF	7
USFS AQS	H2O_Temp_potato1	H2O_Temp_potato1	40.489073	-123.028230	963	15.3	8234604	264992	Potato Cr	UHF	5
USFS AQS	H2O_Temp_prospect1	H2O_Temp_prospect1	40.252841	-123.112059	935	34.5	8236312	267146	Prospect Cr	USF	5
USFS AQS	H2O_temp_Rattlesnake Creek abv_Post15	H2O_temp_Rattlesnake Creek abv_Post15	40.391312	-123.276177	823	37.8	8234886	265207	Rattlesnake Cr	MSF	5
USFS AQS	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	733	121.1	8234942	265207	Rattlesnake Cr	MSF	5
USFS AQS	H2O_Temp_rattlesnake2	H2O_Temp_rattlesnake2	40.390233	-123.274533	829	37.8	8234886	265207	Rattlesnake Cr	MSF	5
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	663	21.1	8232610	265675	Rusch Cr	LHF	6
USFS AQS	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	896	110.3	8235166	249724	SF Trinity R	USF	5
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	371	2034.7	8233476	249724	SF Trinity R	LSF	16
USFS AQS	H2O_Temp_sftr4	H2O_Temp_sftr4	40.605307	-123.448465	391	889.2	8232534	249724	SF Trinity R	MSF	4
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	980	12.4	8232914	268451	Tule Cr	MHF	6
USFS AQS	HallCity_H2O_Temp	HallCity_H2O_Temp	40.400443	-123.053096	1025	10.4	8234858	224803	Hall City Cr	UHF	3
USFS AQS	Hawk_H2O_Temp	Hawk_H2O_Temp	40.708412	-123.300254	1014		NA			LHF	1
USFS AQS	HayfordCr_bValley_H20_Temp	HayfordCr_bValley_H20_Temp	40.572235	-123.238326	677	710.1	8233504	266799	Hayfork Cr	MHF	1
USFS AQS	Hayfork_at_Hyampom_171_H2O_Temp	Hayfork_at_Hyampom_171_H2O_Temp	40.615043	-123.449986	393	1001.9	8232510	266799	Hayfork Cr	LHF	3
USFS AQS	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	840	131.6	8234694	266799	Hayfork Cr	UHF	2
USFS AQS	HayforkAboveSG_H2O_Temp	HayforkAboveSG_H2O_Temp	40.469007	-123.057632	850	131.6	8234694	266799	Hayfork Cr	UHF	2
USFS AQS	HayforkCR_ab_CorralCr	HayforkCR_ab_CorralCr	40.628510	-123.361758	481	855.8	8232490	266799	Hayfork Cr	LHF	2
USFS AQS	HayforkCr_bCorralCr_H2O_Temp	HayforkCr_bCorralCr_H2O_Temp	40.628055	-123.363054	475	952.0	8232468	266799	Hayfork Cr	LHF	3
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	559	842.7	8232492	266799	Hayfork Cr	LHF	8
USFS AQS	Hells_Half_Acre_H2O_Temp	Hells_Half_Acre_H2O_Temp	40.767294	-123.517982	1110	3.1	8232076	261253	Hells Half Acre Cr	LSF	1

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
USFS AQS	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	621	790.5	8232540	266799	Hayfork Cr	LHF	4
USFS AQS	HF_Arnold_166_H2O_temp	HF_Arnold_166_H2O_temp	40.557483	-123.103009	748	239.4	8232760	266799	Hayfork Cr	UHF	5
USFS AQS	HF_blw_ShiellGulch_H2O_Temp	HF_blw_ShiellGulch_H2O_Temp	40.471337	-123.060908	841	131.6	8234694	266799	Hayfork Cr	UHF	4
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	620	790.5	8232540	266799	Hayfork Cr	LHF	6
USFS AQS	Horse_Drink_142_H2O_Temp	Horse_Drink_142_H2O_Temp	40.245016	-123.005946	1454		NA			USF	1
USFS AQS	Indian_trib_071_H2O_Temp	Indian_trib_071_H2O_Temp	40.552308	-123.386181	1084		NA			MSF	1
USFS AQS	IndianValleyCr_b_Dam_H20_temp	IndianValleyCr_b_Dam_H20_temp	40.519012	-123.341152	1195	18.1	8232824			MSF	1
USFS AQS	Jesse_H20_temp	Jesse_H20_temp	40.580099	-123.445178	434	3.0	8232606			MSF	1
USFS AQS	Jims_Cr_084_H2O_Temp	Jims_Cr_084_H2O_Temp	40.510561	-123.388788	1196	4.0	8232880	234082	Jims Cr	MSF	1
USFS AQS	Klondike_124_H2O_Temp	Klondike_124_H2O_Temp	40.395464	-123.399825	779		NA			MSF	1
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	391	1001.9	8232510	266799	Hayfork Cr	LHF	8
USFS AQS	Little_054_H2O_Temp	Little_054_H2O_Temp	40.642523	-123.219918	1294		NA			LHF	1
USFS AQS	Little_Brush_053_H2O_Temp	Little_Brush_053_H2O_Temp	40.629036	-123.199769	1310	3.9	8232518			LHF	1
USFS AQS	Little_H2O_temp	Little_H2O_temp	40.585800	-123.259671	666	23.6	8233500	262577	Little Cr	LHF	3
USFS AQS	Lower_Butter_H20_temp	Lower_Butter_H20_temp	40.567289	-123.431874	462	94.7	8232658	257775	Butter Cr	MSF	4
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	213	60.2	8231938	227902	Old Campbell Cr	LSF	10
USFS AQS	Maddox_Lake_trib_072_H2O_Temp	Maddox_Lake_trib_072_H2O_Temp	40.555703	-123.416892	813		NA			MSF	1
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	170	60.2	8231938	227902	Old Campbell Cr	LSF	7
USFS AQS	Miners Creek abv W Fk 9 H2O temp	Miners Creek abv W Fk 9 H2O temp	40.639001	-123.322096	591	24.7	8232414	263676	Miners Cr	LHF	1
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	561	33.6	8232424	263676	Miners Cr	LHF	10
USFS AQS	miners1_H2O_Temp	miners1_H2O_Temp	40.638935	-123.322120	591	24.7	8232414	263676	Miners Cr	LHF	4
USFS AQS	Monroe_H2O_Temp	Monroe_H2O_Temp	40.674205	-123.509441	462	4.3	8232312	228926	Monroe Cr	LSF	2
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	1193	9.2	8234692	264008	Naufus Cr	MSF	8
USFS AQS	New_051_H2O_Temp	New_051_H2O_Temp	40.648880	-123.200693	1406		NA			MHF	1
USFS AQS	NF_Mingo_012_H2O_Temp	NF_Mingo_012_H2O_Temp	40.789073	-123.596546	843	5.2	8232040	264187	NF Mingo Cr	LSF	1
USFS AQS	Nice_Seat_081_H2O_Temp	Nice_Seat_081_H2O_Temp	40.536000	-123.451511	485		NA			MSF	1
USFS AQS	Olsen_H2O_Temp	Olsen_H2O_Temp	40.648190	-123.436654	723	9.3	8232376	264349	Olsen Cr	LHF	2
USFS AQS	OlsenCr_H2O_Temp	OlsenCr_H2O_Temp	40.618562	-123.444158	395	17.5	8232498	264349	Olsen Cr	LHF	1
USFS AQS	OlsenCr_Lower_H2O_temp	OlsenCr_Lower_H2O_temp	40.628343	-123.443536	430	17.5	8232498	264349	Olsen Cr	LHF	3
USFS AQS	OlsenCr_Upper_H2O_Temp	OlsenCr_Upper_H2O_Temp	40.648934	-123.436351	732	9.3	8232376	264349	Olsen Cr	LHF	3
USFS AQS	Orchard_092_H2O_Temp	Orchard_092_H2O_Temp	40.531011	-123.085690	819	2.4	8232792			UHF	1
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	400	32.4	8232544	264627	Pelletreau Cr	LSF	7
USFS AQS	Pettijohn_154_H2O_Temp	Pettijohn_154_H2O_Temp	40.202929	-122.982901	1895	8.8	8236562	259708	EF SF Trinity R	USF	4
USFS AQS	Philpot_trib_111_H2O_Temp	Philpot_trib_111_H2O_Temp	40.449227	-123.218365	947	2.8	8234720			MHF	2
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	523	65.4	8234638	234486	Plummer Cr	MSF	10
USFS AQS	Post_115 H2O_temp	Post_115 H2O_temp	40.391786	-123.275117	826	38.3	8234872	264984	Post Cr	MSF	4
USFS AQS	Potato_103_H2O_Temp	Potato_103_H2O_Temp	40.488472	-123.028082	969	15.3	8234604	264992	Potato Cr	UHF	2
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	969	15.3	8234604	264992	Potato Cr	UHF	9
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	1207	9.6	8235250	249724	SF Trinity R	USF	12
USFS AQS	ProspectCr_H20_Temp	ProspectCr_H20_Temp	40.248564	-123.114246	901	34.5	8236312	267146	Prospect Cr	USF	1
USFS AQS	Rat_sta_H2O_temp	Rat_sta_H2O_temp	40.372404	-123.306268	735	121.1	8234942	265207	Rattlesnake Cr	MSF	5
USFS AQS	Rattlesnake_121_H2O_Temp	Rattlesnake_121_H2O_Temp	40.393394	-123.221508	932	20.6	8234888	265207	Rattlesnake Cr	MSF	2
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	710	121.1	8234942	265207	Rattlesnake Cr	MSF	6
USFS AQS	RattlesnakeCrU_H20_Temp	RattlesnakeCrU_H20_Temp	40.392730	-123.223338	922	20.6	8234888	265207	Rattlesnake Cr	MSF	2
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	163	2414.1	8231928	249724	SF Trinity R	LSF	7
USFS AQS	SFOCPL_H2O_temp	SFOCPL_H2O_temp	40.880817	-123.611682	164	2414.1	8231928	249724	SF Trinity R	LSF	2
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	770	342.9	8235082	249724	SF Trinity R	USF	6
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	1210	16.4	8235232			USF	12

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
USFS AQS	SFT_at_ButterCr_H20_Temp	SFT_at_ButterCr_H20_Temp	40.570659	-123.443889	430	776.3	8232646	249724	SF Trinity R	MSF	5
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	433	872.6	8232634	249724	SF Trinity R	MSF	8
USFS AQS	SFT_below_Slide_H2O_temp	SFT_below_Slide_H2O_temp	40.701338	-123.518247	314	2058.9	8232214	249724	SF Trinity R	LSF	1
USFS AQS	SFT_belowCave_H2O_temp	SFT_belowCave_H2O_temp	40.380862	-123.336602	689	544.9	8234910	249724	SF Trinity R	MSF	5
USFS AQS	SFT_BelowWilderness_H2O_Temp	SFT_BelowWilderness_H2O_Temp	40.169730	-123.026249	1207	9.6	8235250	249724	SF Trinity R	USF	1
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	880	216.6	8236310	249724	SF Trinity R	USF	15
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	693	539.1	8234926	249724	SF Trinity R	MSF	7
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	393	889.2	8232534	249724	SF Trinity R	MSF	9
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	957	62.7	8235200	249724	SF Trinity R	USF	7
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	510	636.0	8234666	249724	SF Trinity R	MSF	7
USFS AQS	SFTrinity_at_Plummer_H2O_Temp	SFTrinity_at_Plummer_H2O_Temp	40.475839	-123.419039	510	636.0	8234666	249724	SF Trinity R	MSF	2
USFS AQS	Sheill_Gulch_112_H2O_Temp	Sheill_Gulch_112_H2O_Temp	40.456216	-123.054713	916	4.6	8234700	232995	Shiell Gulch	UHF	5
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	957	29.6	8235208	232936	Shell Mountain Cr	USF	6
USFS AQS	Silver_H2O_temp	Silver_H2O_temp	40.312777	-123.247198	755	14.6	8235064	233127	Silver Cr	USF	5
USFS AQS	Sims_Creek_H2O_Temp	Sims_Creek_H2O_Temp	40.721267	-123.585628	590	4.3	8232158	233168	Sims Cr	LSF	2
USFS AQS	SKFGRO_H2O_temp	SKFGRO_H2O_temp	40.734159	-123.544284	269	2237.6	8232114	249724	SF Trinity R	LSF	5
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	769	44.6	8235080	234734	Smoky Cr	USF	11
USFS AQS	South Fork Trinity blw Powell Creek H2O temp	South Fork Trinity blw Powell Creek H2O temp	40.170013	-123.027469	1198	29.1	8235234	249724	SF Trinity R	USF	2
USFS AQS	SouthForkaboveMadden	SouthForkaboveMadden	40.880674	-123.611957	161	2352.7	8231946	249724	SF Trinity R	LSF	3
USFS AQS	Spikenard_Forest_083_H2O_Temp	Spikenard_Forest_083_H2O_Temp	40.532187	-123.443737	522	2.3	8232776			MSF	1
USFS AQS	Split_153_H2O_Temp	Split_153_H2O_Temp	40.203973	-122.985233	1873	8.8	8236562	259708	EF SF Trinity R	USF	1
USFS AQS	Summit_061_H2O_Temp	Summit_061_H2O_Temp	40.582453	-123.030746	903	6.8	8232618	267918	Summit Cr	MHF	1
USFS AQS	Surprise_014_H2O_Temp	Surprise_014_H2O_Temp	40.786235	-123.558146	240	3.8	8232050	267985	Surprise Cr	LSF	1
USFS AQS	Temp Salt Creek at Mill Gulch 55 H2O temp	Temp Salt Creek at Mill Gulch 55 H2O temp	40.491157	-123.168068	746	128.8	8234602	265769	Salt Cr	MHF	1
USFS AQS	Temp Salt_114_H2O_Temp	Temp Salt_114_H2O_Temp	40.425552	-123.115483	849	31.2	8234786	265769	Salt Cr	MHF	3
USFS AQS	Texas_Chow_144_H2O_Temp	Texas_Chow_144_H2O_Temp	40.263232	-123.088626	1092	9.7	8235136	268162	Texas Chow Cr	USF	2
USFS AQS	Tule_Creek_102_H2O_Temp	Tule_Creek_102_H2O_Temp	40.469854	-123.274723	1210	4.2	8234680	268451	Tule Cr	MHF	2
USFS AQS	Tule_trib_101_H2O_Temp	Tule_trib_101_H2O_Temp	40.490181	-123.258236	1091	4.8	8234678			MHF	1
USFS AQS	Twenty_Two_134_H2O_Temp	Twenty_Two_134_H2O_Temp	40.349463	-123.089230	1128	3.6	8235006			UHF	2
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	836	27.9	8232264	259880	Eltapom Cr	LSF	10
USFS AQS	Underwood_H2O_Temp	Underwood_H2O_Temp	40.719423	-123.521071	315	11.4	8232134	236779	Underwood Cr	LSF	2
USFS AQS	W_trib_Butter_064_H2O_Temp	W_trib_Butter_064_H2O_Temp	40.585763	-123.384657	915		NA			MSF	2
USFS AQS	W_Twin_123_H2O_Temp	W_Twin_123_H2O_Temp	40.381362	-123.230015	944	4.0	8234954			MSF	2
USFS AQS	Walker_052_H2O_Temp	Walker_052_H2O_Temp	40.623210	-123.407958	559		NA			LHF	1
USFS AQS	WF_Hayfork_133_H2O_Temp	WF_Hayfork_133_H2O_Temp	40.324445	-123.113724	1299	7.7	8235048			UHF	1
USFS AQS	White_Rock_Camp_143_H2O_Temp	White_Rock_Camp_143_H2O_Temp	40.249139	-123.025295	1427		NA			USF	1
USFS AQS	WilsonCreek_H2O_Temp	WilsonCreek_H2O_Temp	40.418652	-123.040570	1079	7.2	8234828	237962	Wilson Cr	UHF	3
USFS RSL	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	840	131.6	8234694	266799	Hayfork Cr	UHF	2
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	137	2414.1	8231928	249724	SF Trinity R	LSF	15
WRTC	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	839	63.5	8232588	256912	Big Cr	MHF	5
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	720	70.7	8232726	256912	Big Cr	MHF	6
WRTC	Crystal Oxbow	Crystal Oxbow	40.631372	-123.477445	379		NA			LSF	
WRTC	East Fork Hayfork Cr	East Fork Hayfork Cr	40.502244	-123.035668	881	39.4	8232906	222886	EF Hayfork Cr	UHF	2
WRTC	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	633	19.7	8232538	256646	Bear Cr	LHF	1
WRTC	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	954	49.2	8235160	259708	EF SF Trinity R	USF	1
WRTC	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	380	50.8	8232336	259880	Eltapom Cr	LSF	1
WRTC	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	733	121.1	8234942	265207	Rattlesnake Cr	MSF	1
WRTC	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	896	110.3	8235166	249724	SF Trinity R	USF	1

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	Elev (m)	Drain. Area (km2)	NSI Reach COMID	NSI Reach GNIS ID	NSI Reach GNIS Name	Water-shed	Yrs
WRTC	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	371	2034.7	8233476	249724	SF Trinity R	LSF	1
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	754	239.4	8232760	266799	Hayfork Cr	UHF	6
WRTC	Hayfork Cr at Gravel Mine	Hayfork Cr at Gravel Mine	40.547592	-123.167903	705	440.4	8232748	266799	Hayfork Cr	MHF	3
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	397	1001.9	8232510	266799	Hayfork Cr	LHF	6
WRTC	Hayfork Cr at Mercel's Br	Hayfork Cr at Mercel's Br	40.557099	-123.228993	685	698.9	8232686	266799	Hayfork Cr	MHF	1
WRTC	Hayfork Cr at Picket's 1	Hayfork Cr at Picket's 1	40.554415	-123.219582	689	693.9	8232704	266799	Hayfork Cr	MHF	
WRTC	Hayfork Cr at Shiel Gulch	Hayfork Cr at Shiel Gulch	40.469738	-123.059632	848	131.6	8234694	266799	Hayfork Cr	UHF	1
WRTC	Hayfork Cr at Wetland	Hayfork Cr at Wetland	40.548645	-123.168590	705	440.4	8232748	266799	Hayfork Cr	MHF	2
WRTC	Hayfork Cr below Tule Cr Conf (Pig Ranch)	Hayfork Cr below Tule Cr Conf (Pig Ranch)	40.554415	-123.219582	689	693.9	8232704	266799	Hayfork Cr	MHF	3
WRTC	Hayfork Cr near EF Hayfork Cr	Hayfork Cr near EF Hayfork Cr	40.490476	-123.071319	804	200.7	8234580	266799	Hayfork Cr	UHF	4
WRTC	Hayfork Cr near Oak Street Br	Hayfork Cr near Oak Street Br	40.548928	-123.170658	704	440.4	8232748	266799	Hayfork Cr	MHF	2
WRTC	Hayfork Wetland	Hayfork Wetland	40.547842	-123.167175	706		NA			MHF	1
WRTC	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	621	790.5	8232540	266799	Hayfork Cr	LHF	1
WRTC	Madden Cr at Br	Madden Cr at Br	40.876652	-123.620971	203	60.2	8231938	227902	Old Campbell Cr	LSF	
WRTC	Plummer Cr above SF Trinity R (River Spirit)	Plummer Cr above SF Trinity R (River Spirit)	40.476006	-123.417146	520	65.4	8234638	234486	Plummer Cr	MSF	4
WRTC	Salt Cr at Hwy 3	Salt Cr at Hwy 3	40.455470	-123.162658	776	80.6	8234706	265769	Salt Cr	MHF	2
WRTC	Salt Cr at Tule Cr Rd Br	Salt Cr at Tule Cr Rd Br	40.548866	-123.204884	697	149.2	8232782	265769	Salt Cr	MHF	5
WRTC	Salt Cr at USFS campground	Salt Cr at USFS campground	40.425720	-123.114904	852	31.2	8234786	265769	Salt Cr	MHF	3
WRTC	Salt Cr at Waterworks	Salt Cr at Waterworks	40.546635	-123.204543	697	149.2	8232782	265769	Salt Cr	MHF	2
WRTC	Salt Cr near 31N38	Salt Cr near 31N38	40.496697	-123.171396	739	137.1	8234566	265769	Salt Cr	MHF	1
WRTC	SF Trinity R above Madden Cr	SF Trinity R above Madden Cr	40.880294	-123.612032	165	2352.7	8231946	249724	SF Trinity R	LSF	
WRTC	SF Trinity R above Plummer Cr	SF Trinity R above Plummer Cr	40.476622	-123.419271	510	702.1	8234620	249724	SF Trinity R	MSF	2
WRTC	SF Trinity R at Smoky Cr	SF Trinity R at Smoky Cr	40.302851	-123.236204	772	298.1	8235092	249724	SF Trinity R	USF	1
WRTC	SF Trinity R below Hyampom	SF Trinity R below Hyampom	40.658537	-123.495148	371	1982.7	8232392	249724	SF Trinity R	LSF	
WRTC	SF Trinity R below Madden Cr	SF Trinity R below Madden Cr	40.881823	-123.602231	148	2414.1	8231928	249724	SF Trinity R	LSF	
WRTC	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	693	539.1	8234926	249724	SF Trinity R	MSF	1
WRTC	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	957	29.6	8235208	232936	Shell Mountain Cr	USF	1
WRTC	Smoky Cr	Smoky Cr	40.304968	-123.236506	769	44.6	8235080	234734	Smoky Cr	USF	1
WRTC	Tule Cr at Confluence	Tule Cr at Confluence	40.551444	-123.214069	690	56.5	8232810	268451	Tule Cr	MHF	3
WRTC	Tule Cr at Tule Cr Rd Br	Tule Cr at Tule Cr Rd Br	40.524009	-123.224961	728	56.5	8232810	268451	Tule Cr	MHF	4

APPENDIX B: TABLE OF ANNUAL TEMPERATURE METRICS FOR EACH SITE AND YEAR

Figure B1. Complete list of annual summaries of stream temprature data for all sites in the South Fork Trinity River watershed. There is one row for each site for each year. Rows are sorted by Watershed, GNIS Name, drainage area (small to large, not shown), Year, Source Entity, and Site Name. Key to abbreviations and other explanations: Source Entity = entity that provided temperature data, see Table 1 for key to abbreviations; Site Name = the combination of Site Name and Source Entity is a unique identifier for the site; Site Description = supplemental information regarding site location, sometimes identical to the Site Name; Original Latitude/ Longitude NAD83 = original spatial coordinates (i.e., before snapping to NSI stream network) for the temperature site, in units of decimal degrees with the North American Datum of 1983; NSI Reach COMID = Common identifier code for the reach in National Stream Internet stream network that a temperature site was snapped to (if blank, reach does not exist in NSI stream network); NSI Reach GNIS Name = official U.S. Geological Survey Geographic Names Information System name for reach in NSI stream network (if blank, stream has no GNIS name and/or reach does not exist in NSI stream network); Watershed = watershed corresponding to Figure 1 (prefixes: L = Lower, M = Middle, U = Upper, suffixes: SF = South Fork Trinity, HF = Hayfork); MWMT = Maximum Weekly Maximum Temperature; Overlap = Y denotes duplicative data (see section 2.1), MDMT = Maximum Daily Maximum Temperature; MWAT = Maximum Weekly Average Temperature; Aug. Mean = Mean August stream temperature; Days = number of days for which temperature data were available to calculate daily summary statistics; Date Start/End = first and last days with temeprature data.

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	1989	15.96	14.59	16.61	13.92	78	6/14/89	8/30/89	
HSU FSP	6031	BEAR CREEK/SITE_6	40.605150	-123.283798	8232538	Bear Cr	LHF	1990	17.74	16.23	18.11	14.71	150	5/4/90	9/30/90	Y
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	1990	17.74	16.23	18.11	14.71	153	5/4/90	10/3/90	
HSU FSP	6031	BEAR CREEK/SITE_6	40.605150	-123.283798	8232538	Bear Cr	LHF	1991	17.73	15.84	18.11	14.79	169	5/1/91	10/16/91	Y
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	1991	17.73	15.84	18.11	14.79	175	4/25/91	10/16/91	
HSU FSP	6031	BEAR CREEK/SITE_6	40.605150	-123.283798	8232538	Bear Cr	LHF	1992	18.15	16.71	18.50	15.17	153	5/9/92	10/8/92	Y
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	1992	18.15	16.71	18.50	15.17	153	5/9/92	10/8/92	
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	2000	16.68	15.45	16.89	14.05	133	6/21/00	10/31/00	
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	2001	17.39	15.84	17.92	14.86	160	5/23/01	10/29/01	
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	2002	17.05	15.73	17.60	14.19	147	5/23/02	10/16/02	
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	2003	16.76	15.68	17.28	14.17	121	6/2/03	9/30/03	
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	2004	16.94	15.65	17.12	14.69	152	5/13/04	10/11/04	
USFS AQS	Bear_H2O_temp	Bear_H2O_temp	40.604453	-123.284573	8232538	Bear Cr	LHF	2007	17.05	15.74	17.60	14.43	135	6/11/07	10/23/07	
WRTC	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	8232538	Bear Cr	LHF	2010	17.85	15.73	18.29	14.44	160	6/10/10	11/16/10	
USFS AQS	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	8232538	Bear Cr	LHF	2011	17.10	15.17	17.56	14.58	170	7/14/11	12/31/11	
USFS AQS	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	8232538	Bear Cr	LHF	2012					179	1/1/12	6/27/12	
USFS AQS	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	8232538	Bear Cr	LHF	2013					63	10/30/13	12/31/13	
USFS AQS	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	8232538	Bear Cr	LHF	2014	19.64	17.54	20.25	16.14	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_bear1	H2O_Temp_bear1	40.604877	-123.283829	8232538	Bear Cr	LHF	2015					173	1/1/15	6/22/15	
USFS AQS	CorralCrUpper_H2O_Temp	CorralCrUpper_H2O_Temp	40.703245	-123.351491	8232200	Corral Cr	LHF	1999	14.83	13.09	16.00	12.39	175	5/28/99	11/18/99	
USFS AQS	H2O_Temp_corral2	H2O_Temp_corral2	40.699956	-123.364420	8232248	Corral Cr	LHF	2011	15.24	13.65	15.72	12.90	178	7/6/11	12/31/11	
USFS AQS	H2O_Temp_corral2	H2O_Temp_corral2	40.699956	-123.364420	8232248	Corral Cr	LHF	2012	15.96	14.50	16.49	13.28	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_corral2	H2O_Temp_corral2	40.699956	-123.364420	8232248	Corral Cr	LHF	2013	16.86	15.15	17.37	13.41	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_corral2	H2O_Temp_corral2	40.699956	-123.364420	8232248	Corral Cr	LHF	2014	16.78	15.16	17.37	13.79	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_corral2	H2O_Temp_corral2	40.699956	-123.364420	8232248	Corral Cr	LHF	2015	16.82	15.19	17.30	13.05	321	1/1/15	11/18/15	
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	8232458	Corral Cr	LHF	1999	17.77	16.05	19.24	15.33	147	6/4/99	10/28/99	
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	8232458	Corral Cr	LHF	2005	18.87	17.33	19.38	16.49	137	6/3/05	10/17/05	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	8232458	Corral Cr	LHF	2007	20.31	18.64	20.84	16.72	152	6/8/07	11/6/07	
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	8232458	Corral Cr	LHF	2011	17.93	16.47	18.58	15.64	110	7/14/11	10/31/11	
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	8232458	Corral Cr	LHF	2014				17.99	153	8/1/14	12/31/14	
USFS AQS	H2O_Temp_CorralCrLower	H2O_Temp_CorralCrLower	40.629204	-123.362786	8232458	Corral Cr	LHF	2015					173	1/1/15	6/22/15	
HSU FSP	7001	SITE01	40.596817	-123.281130	8232554	Hayfork Cr	LHF	1996					53	6/2/96	7/24/96	
HSU FSP	7001	SITE01	40.596817	-123.281130	8232554	Hayfork Cr	LHF	1997	24.67	22.28	25.09	20.68	103	6/1/97	9/11/97	
HSU FSP	7001	SITE01	40.596817	-123.281130	8232554	Hayfork Cr	LHF	1998	23.59	22.18	24.15	19.53	84	6/26/98	9/17/98	
HSU FSP	6034	HAYFORK CREEK/SITE_42	40.605698	-123.286251	8232540	Hayfork Cr	LHF	1991	25.73	23.79	26.89	19.21	105	7/4/91	10/16/91	Y
USFS AQS	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	8232540	Hayfork Cr	LHF	1991	25.73	23.79	26.89	19.21	105	7/4/91	10/16/91	
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	8232540	Hayfork Cr	LHF	2000	24.38	22.59	24.89	19.67	133	6/21/00	10/31/00	
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	8232540	Hayfork Cr	LHF	2001	25.09	23.37	26.01	20.49	160	5/23/01	10/29/01	
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	8232540	Hayfork Cr	LHF	2002	26.74	22.82	27.95	18.39	147	5/23/02	10/16/02	
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	8232540	Hayfork Cr	LHF	2003	23.15	21.58	23.92	18.79	121	6/2/03	9/30/03	
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	8232540	Hayfork Cr	LHF	2004	24.39	22.20	24.72	19.75	152	5/13/04	10/11/04	
USFS AQS	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	8232540	Hayfork Cr	LHF	2005	24.99	23.21	25.24	20.88	155	5/17/05	10/18/05	
USFS AQS	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	8232540	Hayfork Cr	LHF	2006				19.51	107	7/31/06	11/14/06	
USFS AQS	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	8232540	Hayfork Cr	LHF	2007	25.71	23.79	26.11	20.15	136	6/10/07	10/23/07	
USFS AQS	HFCr_Below_BearCR_H20_Temp	HFCr_Below_BearCR_H20_Temp	40.605667	-123.286104	8232540	Hayfork Cr	LHF	2007	22.67	20.62	23.10	17.79	134	6/12/07	10/23/07	
WRTC	HF_ab_Bear_H2O_temp	HF_ab_Bear_H2O_temp	40.604601	-123.284868	8232540	Hayfork Cr	LHF	2010	24.27	22.24	25.23	19.40	160	6/10/10	11/16/10	
USFS AQS	H2O_Temp_hayfork3	H2O_Temp_hayfork3	40.606898	-123.288818	8232540	Hayfork Cr	LHF	2011	22.80	21.25	23.47	19.58	170	7/14/11	12/31/11	
USFS AQS	H2O_Temp_hayfork3	H2O_Temp_hayfork3	40.606898	-123.288818	8232540	Hayfork Cr	LHF	2012					179	1/1/12	6/27/12	
USFS AQS	H2O_Temp_hayfork3	H2O_Temp_hayfork3	40.606898	-123.288818	8232540	Hayfork Cr	LHF	2014				22.06	153	8/1/14	12/31/14	
USFS AQS	H2O_Temp_hayfork3	H2O_Temp_hayfork3	40.606898	-123.288818	8232540	Hayfork Cr	LHF	2015	27.73	25.40	28.20	19.91	300	1/1/15	10/28/15	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	1989	23.13	21.51	23.39	20.23	81	6/11/89	8/30/89	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2000	25.03	23.18	25.48	20.54	127	6/28/00	11/1/00	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2001	26.28	23.81	27.23	21.76	154	6/5/01	11/5/01	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2002	25.64	23.69	26.19	20.69	126	6/11/02	10/14/02	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2003	24.64	23.37	25.40	20.28	112	6/17/03	10/6/03	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2004	25.10	23.07	25.40	20.94	97	7/2/04	10/6/04	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2005	23.50	21.99	23.84	19.88	139	6/1/05	10/17/05	
USFS AQS	HCbMC_H20_temps	HCbMC_H20_temps	40.634895	-123.321651	8232492	Hayfork Cr	LHF	2007	26.13	24.24	26.63	21.21	149	6/12/07	11/7/07	
USFS AQS	HayforkCR_ab_CorralCr	HayforkCR_ab_CorralCr	40.628510	-123.361758	8232490	Hayfork Cr	LHF	2005	24.47	23.29	24.69	21.42	135	6/3/05	10/15/05	
USFS AQS	HayforkCR_ab_CorralCr	HayforkCR_ab_CorralCr	40.628510	-123.361758	8232490	Hayfork Cr	LHF	2007	25.36	24.11	25.90	21.72	152	6/8/07	11/6/07	
USFS AQS	HayforkCr_bCorralCr_H2O_Temp	HayforkCr_bCorralCr_H2O_Temp	40.628055	-123.363054	8232468	Hayfork Cr	LHF	1999	24.56	21.02	25.48	19.29	147	6/4/99	10/28/99	
USFS AQS	HayforkCr_bCorralCr_H2O_Temp	HayforkCr_bCorralCr_H2O_Temp	40.628055	-123.363054	8232468	Hayfork Cr	LHF	2005	23.44	22.20	23.71	20.28	137	6/3/05	10/17/05	
USFS AQS	HayforkCr_bCorralCr_H2O_Temp	HayforkCr_bCorralCr_H2O_Temp	40.628055	-123.363054	8232468	Hayfork Cr	LHF	2007	24.22	22.71	24.91	20.08	152	6/8/07	11/6/07	
HSU FSP	6030	HAYFORK CREEK/SITE_5	40.616679	-123.447831	8232510	Hayfork Cr	LHF	1990	28.81	24.96	29.28	22.02	151	5/4/90	10/1/90	Y
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	1990	28.81	24.96	29.28	22.01	151	5/4/90	10/1/90	
HSU FSP	6030	HAYFORK CREEK/SITE_5	40.616679	-123.447831	8232510	Hayfork Cr	LHF	1991	27.26	23.83	28.11	22.36	161	5/1/91	10/8/91	Y
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	1991	27.26	23.83	28.11	22.36	167	4/25/91	10/8/91	
HSU FSP	6030	HAYFORK CREEK/SITE_5	40.616679	-123.447831	8232510	Hayfork Cr	LHF	1992	28.75	24.64	29.11	22.48	153	5/6/92	10/5/92	Y
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	1992	28.75	24.64	29.11	22.48	152	5/7/92	10/5/92	
HSU FSP	6030	HAYFORK CREEK/SITE_5	40.616679	-123.447831	8232510	Hayfork Cr	LHF	1998					26	6/24/98	7/19/98	
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	1999	24.08	21.72	25.39	20.18	145	6/18/99	11/9/99	
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	2001	29.09	24.86	30.12	23.10	160	5/23/01	10/29/01	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	2002	28.57	24.49	29.19	21.88	130	6/7/02	10/14/02	
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	2003	26.99	24.21	27.37	21.47	129	5/28/03	10/3/03	
USFS AQS	LHF_H20_temp	LHF_H20_temp	40.614069	-123.450749	8232510	Hayfork Cr	LHF	2004	28.49	24.69	28.83	22.83	107	6/28/04	10/12/04	
USFS AQS	Hayfork_at_Hyampom_171_H2O_Temp	Hayfork_at_Hyampom_171_H2O_Temp	40.615043	-123.449986	8232510	Hayfork Cr	LHF	2005	26.13	23.56	27.02		57	6/4/05	7/30/05	
USFS AQS	Hayfork_at_Hyampom_171_H2O_Temp	Hayfork_at_Hyampom_171_H2O_Temp	40.615043	-123.449986	8232510	Hayfork Cr	LHF	2006	26.89	24.26	27.70	20.50	119	6/23/06	10/19/06	
USFS AQS	H2O_Temp_AREMP_CAGRS	H2O_Temp_AREMP_CAGRS	40.615696	-123.449384	8232510	Hayfork Cr	LHF	2007	27.74	24.90	28.77	22.54	153	4/20/07	9/19/07	
USFS AQS	Hayfork_at_Hyampom_171_H2O_Temp	Hayfork_at_Hyampom_171_H2O_Temp	40.615043	-123.449986	8232510	Hayfork Cr	LHF	2007	29.10	25.19	30.04	22.84	128	6/7/07	10/12/07	
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	8232510	Hayfork Cr	LHF	2010	25.42	23.34	25.92	20.95	152	6/18/10	11/16/10	
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	8232510	Hayfork Cr	LHF	2011	23.42	21.94	23.98	20.85	95	7/14/11	10/16/11	
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	8232510	Hayfork Cr	LHF	2012					5	8/11/12	8/15/12	
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	8232510	Hayfork Cr	LHF	2013	28.72	25.35	29.57	22.75	83	7/3/13	9/23/13	
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	8232510	Hayfork Cr	LHF	2014	28.93	25.49	29.77	23.00	169	7/16/14	12/31/14	
WRTC	Hayfork Cr at Hyampom Br	Hayfork Cr at Hyampom Br	40.616100	-123.449439	8232510	Hayfork Cr	LHF	2015					174	1/1/15	6/23/15	
USFS AQS	AREMP CAGRS001	AREMP CAGRS001	40.616577	-123.448022	8232510	Hayfork Cr	LHF									
USFS AQS	Little_H2O_temp	Little_H2O_temp	40.585800	-123.259671	8233500	Little Cr	LHF	2003	16.07	15.07	16.57	13.43	118	6/5/03	9/30/03	
USFS AQS	Little_H2O_temp	Little_H2O_temp	40.585800	-123.259671	8233500	Little Cr	LHF	2005	15.51	14.33	15.78	13.76	137	6/2/05	10/16/05	
USFS AQS	Little_H2O_temp	Little_H2O_temp	40.585800	-123.259671	8233500	Little Cr	LHF	2007	15.99	14.88	16.47	13.55	145	6/13/07	11/4/07	
USFS AQS	Miners Creek abv W Fk 9 H2O temp	Miners Creek abv W Fk 9 H2O temp	40.639001	-123.322096	8232414	Miners Cr	LHF	1990					48	5/2/90	6/18/90	
USFS AQS	miners1_H2O_Temp	miners1_H2O_Temp	40.638935	-123.322120	8232414	Miners Cr	LHF	2011	16.88	15.55	17.34	14.89	170	7/14/11	12/31/11	
USFS AQS	miners1_H2O_Temp	miners1_H2O_Temp	40.638935	-123.322120	8232414	Miners Cr	LHF	2012					179	1/1/12	6/27/12	
USFS AQS	miners1_H2O_Temp	miners1_H2O_Temp	40.638935	-123.322120	8232414	Miners Cr	LHF	2014				16.41	153	8/1/14	12/31/14	
USFS AQS	miners1_H2O_Temp	miners1_H2O_Temp	40.638935	-123.322120	8232414	Miners Cr	LHF	2015					173	1/1/15	6/22/15	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	1989	15.94	14.54	16.28	13.96	81	6/11/89	8/30/89	
HSU FSP	6001	MINERS CREEK/SITE_7	40.638167	-123.322116	8232424	Miners Cr	LHF	1991	14.42	13.87	14.61	13.35	169	5/1/91	10/16/91	
HSU FSP	6001	MINERS CREEK/SITE_7	40.638167	-123.322116	8232424	Miners Cr	LHF	1992	18.60	16.73	19.11	15.16	152	5/9/92	10/7/92	Y
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	1992	18.60	16.73	19.11	15.21	153	5/9/92	10/8/92	
HSU FSP	6001	MINERS CREEK/SITE_7	40.638167	-123.322116	8232424	Miners Cr	LHF	1997	17.02	15.65	17.46	14.87	99	6/24/97	9/30/97	Y
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	1997	17.03	15.66	17.44	14.87	100	6/24/97	10/1/97	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2000	17.64	16.05	17.94	14.56	127	6/28/00	11/1/00	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2001	18.04	16.30	18.75	15.33	154	6/5/01	11/5/01	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2002	17.92	16.30	18.43	14.76	142	6/11/02	10/30/02	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2003	17.34	16.11	17.77	14.56	112	6/17/03	10/6/03	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2004	17.72	16.15	17.93	15.29	97	7/2/04	10/6/04	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2005	16.86	15.46	17.29	14.82	139	6/1/05	10/17/05	
USFS AQS	Miners_H2O_temp	Miners_H2O_temp	40.635032	-123.321399	8232424	Miners Cr	LHF	2007	17.38	15.96	17.93	14.85	149	6/12/07	11/7/07	
HSU FSP	6023	OLSEN CREEK/SITE_12	40.649264	-123.436347	8232376	Olsen Cr	LHF	1990	17.70	16.78	18.22	14.52	178	5/4/90	10/28/90	Y
USFS AQS	OlsenCr_Upper_H2O_Temp	OlsenCr_Upper_H2O_Temp	40.648934	-123.436351	8232376	Olsen Cr	LHF	1990	17.70	16.78	18.22	14.52	229	5/4/90	12/18/90	
HSU FSP	6023	OLSEN CREEK/SITE_12	40.649264	-123.436347	8232376	Olsen Cr	LHF	1991	15.87	15.34	16.22	14.47	161	5/1/91	10/8/91	Y
USFS AQS	OlsenCr_Upper_H2O_Temp	OlsenCr_Upper_H2O_Temp	40.648934	-123.436351	8232376	Olsen Cr	LHF	1991	15.87	15.34	16.22	14.47	167	4/25/91	10/8/91	
HSU FSP	6023	OLSEN CREEK/SITE_12	40.649264	-123.436347	8232376	Olsen Cr	LHF	1992	18.04	16.86	18.50	15.16	153	5/7/92	10/6/92	Y
USFS AQS	OlsenCr_Upper_H2O_Temp	OlsenCr_Upper_H2O_Temp	40.648934	-123.436351	8232376	Olsen Cr	LHF	1992	18.04	16.86	18.50	15.16	153	5/7/92	10/6/92	
USFS AQS	Olsen_H2O_Temp	Olsen_H2O_Temp	40.648190	-123.436654	8232376	Olsen Cr	LHF	2001	14.42	13.38	14.85	12.64	131	6/7/01	10/15/01	
USFS AQS	Olsen_H2O_Temp	Olsen_H2O_Temp	40.648190	-123.436654	8232376	Olsen Cr	LHF	2002	15.95	15.52	16.38	14.00	95	7/14/02	10/16/02	
USFS AQS	OlsenCr_H2O_Temp	OlsenCr_H2O_Temp	40.618562	-123.444158	8232498	Olsen Cr	LHF	1989	17.75	16.77	18.22	16.08	83	6/14/89	9/4/89	
HSU FSP	6024	OLSEN CREEK/SITE_13	40.629328	-123.444523	8232498	Olsen Cr	LHF	1990	19.40	18.44	20.11	16.72	150	5/4/90	9/30/90	Y

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	OlsenCr_Lower_H2O_temp	OlsenCr_Lower_H2O_temp	40.628343	-123.443536	8232498	Olsen Cr	LHF	1990	19.40	18.44	20.11	16.81	150	5/5/90	10/1/90	
HSU FSP	6024	OLSEN CREEK/SITE_13	40.629328	-123.444523	8232498	Olsen Cr	LHF	1991	18.99	17.78	19.39	17.05	161	5/1/91	10/8/91	Y
USFS AQS	OlsenCr_Lower_H2O_temp	OlsenCr_Lower_H2O_temp	40.628343	-123.443536	8232498	Olsen Cr	LHF	1991	18.99	17.78	19.39	17.05	167	4/25/91	10/8/91	
HSU FSP	6024	OLSEN CREEK/SITE_13	40.629328	-123.444523	8232498	Olsen Cr	LHF	1992	20.27	18.96	20.78	17.40	153	5/6/92	10/5/92	Y
USFS AQS	OlsenCr_Lower_H2O_temp	OlsenCr_Lower_H2O_temp	40.628343	-123.443536	8232498	Olsen Cr	LHF	1992	20.27	18.96	20.78	17.45	153	5/7/92	10/6/92	
HSU FSP	6035	RUSCH CREEK/SITE_43	40.584773	-123.266745	8232610	Rusch Cr	LHF	1993	17.14	15.21	17.50	14.11	155	5/11/93	10/12/93	Y
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	8232610	Rusch Cr	LHF	1993	17.14	15.21	17.50	14.11	155	5/11/93	10/12/93	
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	8232610	Rusch Cr	LHF	2011	16.10	14.85	16.56	14.17	172	7/12/11	12/31/11	
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	8232610	Rusch Cr	LHF	2012					183	1/1/12	7/1/12	
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	8232610	Rusch Cr	LHF	2013					62	10/31/13	12/31/13	
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	8232610	Rusch Cr	LHF	2014	19.21	17.69	19.89	16.35	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_RuschCr	H2O_Temp_RuschCr	40.587969	-123.264740	8232610	Rusch Cr	LHF	2015	18.80	17.51	19.15	15.37	300	1/1/15	10/28/15	
USFS AQS	Little_Brush_053_H2O_Temp	Little_Brush_053_H2O_Temp	40.629036	-123.199769	8232518		LHF	2001	12.44	12.08	12.55	11.50	127	6/13/01	10/17/01	
USFS AQS	Corral_trib_H2O_Temp	Corral_trib_H2O_Temp	40.699585	-123.354707	NA		LHF	2001	15.73	14.51	16.38	13.30	132	6/8/01	10/17/01	
USFS AQS	Hawk_H2O_Temp	Hawk_H2O_Temp	40.708412	-123.300254	NA		LHF	2001	13.26	13.08	13.32	12.46	131	6/8/01	10/16/01	
USFS AQS	Little_054_H2O_Temp	Little_054_H2O_Temp	40.642523	-123.219918	NA		LHF	2001	11.99	11.46	12.16	10.92	127	6/13/01	10/17/01	
USFS AQS	Walker_052_H2O_Temp	Walker_052_H2O_Temp	40.623210	-123.407958	NA		LHF	2001	15.40	15.02	15.62	14.31	123	6/15/01	10/15/01	
USFS AQS	Bee_Tree_H2O_Temp	Bee_Tree_H2O_Temp	40.801627	-123.639572	8232034	Bee Tree Flat	LSF	2001	12.33	11.61	12.93	10.86	131	6/6/01	10/14/01	
USFS AQS	Bee_Tree_H2O_Temp	Bee_Tree_H2O_Temp	40.801627	-123.639572	8232034	Bee Tree Flat	LSF	2002	12.77	11.98	13.32	10.87	126	6/20/02	10/23/02	
TPC	TBG3	Big Creek	40.649903	-123.517151	8233480	Big Cr	LSF	1997	16.80	15.62						
USFS AQS	H2O_Temp_eltapom2	H2O_Temp_eltapom2	40.699061	-123.435063	8232226	Eltapom Cr	LSF	2011	13.25	11.92	13.67	11.40	172	7/12/11	12/31/11	
USFS AQS	H2O_Temp_eltapom2	H2O_Temp_eltapom2	40.699061	-123.435063	8232226	Eltapom Cr	LSF	2012	14.53	13.36	14.98	12.13	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_eltapom2	H2O_Temp_eltapom2	40.699061	-123.435063	8232226	Eltapom Cr	LSF	2013	15.33	14.00	15.80	12.29	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_eltapom2	H2O_Temp_eltapom2	40.699061	-123.435063	8232226	Eltapom Cr	LSF	2014	17.15	15.44	17.82	13.72	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_eltapom2	H2O_Temp_eltapom2	40.699061	-123.435063	8232226	Eltapom Cr	LSF	2015	16.92	15.38	17.51	13.35	321	1/1/15	11/18/15	
HSU FSP	6012	ELTAPOM CREEK/SITE_91	40.692813	-123.460137	8232264	Eltapom Cr	LSF	1997	15.98	14.54	16.54	13.43	122	6/1/97	9/30/97	
HSU FSP	6012	ELTAPOM CREEK/SITE_91	40.692813	-123.460137	8232264	Eltapom Cr	LSF	1998	15.41	14.19	15.75	12.74	127	6/24/98	10/28/98	Y
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	1998	15.42	14.19	15.76	12.75	127	6/24/98	10/28/98	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	1999	14.43	13.13	15.76	12.15	166	5/28/99	11/9/99	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2000	15.82	14.52	16.23	12.58	153	6/21/00	11/20/00	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2001	16.28	14.82	17.03	13.54	162	5/23/01	10/31/01	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2002	16.55	15.21	17.46	13.13	144	5/24/02	10/14/02	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2003	16.57	15.55	17.29	13.25	124	5/28/03	9/28/03	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2004	16.23	14.92	16.50	13.62	107	6/22/04	10/6/04	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2005	15.60	14.37	15.87	13.45	152	5/18/05	10/16/05	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2006	16.63	15.48	17.10	12.49	125	7/13/06	11/14/06	
USFS AQS	U_Eltapom_H2O_temp	U_Eltapom_H2O_temp	40.693063	-123.459565	8232264	Eltapom Cr	LSF	2007	16.01	15.04	16.34	12.82	145	5/30/07	10/21/07	
HSU FSP	6022	ELTAPOM CREEK/SITE_92	40.662428	-123.492575	8232336	Eltapom Cr	LSF	1996	19.63	18.33	20.00	16.07	105	6/18/96	9/30/96	Y
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	1996	19.63	18.33	20.00	16.07	134	6/18/96	10/29/96	
HSU FSP	6022	ELTAPOM CREEK/SITE_92	40.662428	-123.492575	8232336	Eltapom Cr	LSF	1998	19.18	17.89	19.55	16.38	127	6/24/98	10/28/98	Y
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	1998	19.19	17.90	19.56	16.38	127	6/24/98	10/28/98	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	1999	17.37	16.19	18.63	15.46	145	6/18/99	11/9/99	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2000	18.77	17.90	19.12	16.36	153	6/21/00	11/20/00	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2002	19.28	18.45	19.67	16.77	130	6/7/02	10/14/02	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2003	19.70	18.76	20.21	16.75	109	6/17/03	10/3/03	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2004	19.13	18.34	19.40	17.49	107	6/28/04	10/12/04	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2006	20.33	19.07	20.90	15.88	121	6/21/06	10/19/06	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2007	19.31	18.18	19.73	16.81	129	6/6/07	10/12/07	
WRTC	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2010	16.37	15.09	16.96	13.61	214	5/14/10	12/13/10	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2011	17.66	16.42	18.18	15.88	172	7/12/11	12/31/11	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2012					178	1/1/12	6/26/12	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2013	18.84	18.29	19.32	17.15	181	7/4/13	12/31/13	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2014	18.17	17.93	18.37	17.74	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_eltapom1	H2O_Temp_eltapom1	40.661908	-123.493476	8232336	Eltapom Cr	LSF	2015	19.79	18.88	20.17	17.21	306	1/1/15	11/3/15	
USFS AQS	Grapevine_H2O_Temp	Grapevine_H2O_Temp	40.703492	-123.538620	8232222	Grapevine Cr	LSF	2001	15.84	15.22	16.38	14.42	130	6/7/01	10/14/01	
USFS AQS	GRAMOS_H2O_temp	GRAMOS_H2O_temp	40.718240	-123.620269	8232148	Grouse Cr	LSF	1999	20.00	17.67	21.31	16.83	97	6/24/99	9/28/99	
USFS AQS	GRAMOS_H2O_temp	GRAMOS_H2O_temp	40.718240	-123.620269	8232148	Grouse Cr	LSF	2000	21.05	19.14	21.47	16.94	122	6/13/00	10/12/00	
HSU FSP	4033	GRMOSQ95	40.718861	-123.619429	8232168	Grouse Cr	LSF	1995	17.70	16.06	18.35	14.35	118	6/14/95	10/9/95	Y
HSU FSP	4034	GRSTR94/GRSTR95/GRSTR96/GRSTR97/GRSTR98	40.718317	-123.574023	8232156	Grouse Cr	LSF	1994	21.75	20.06	22.42	17.82	118	6/16/94	10/11/94	Y
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	1994	21.75	20.06	22.42	17.82	118	6/16/94	10/11/94	
HSU FSP	4034	GRSTR94/GRSTR95/GRSTR96/GRSTR97/GRSTR98	40.718317	-123.574023	8232156	Grouse Cr	LSF	1995	20.92	18.84	21.56	17.18	118	6/14/95	10/9/95	Y
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	1995	20.92	18.84	21.56	17.18	117	6/15/95	10/9/95	
HSU FSP	4034	GRSTR94/GRSTR95/GRSTR96/GRSTR97/GRSTR98	40.718317	-123.574023	8232156	Grouse Cr	LSF	1996	22.46	20.22	23.06	18.13	99	6/6/96	9/12/96	Y
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	1996	22.46	20.22	23.06	18.13	99	6/6/96	9/12/96	
HSU FSP	4034	GRSTR94/GRSTR95/GRSTR96/GRSTR97/GRSTR98	40.718317	-123.574023	8232156	Grouse Cr	LSF	1997	22.56	20.13	23.23	19.01	88	6/27/97	9/22/97	Y
TPC	TGC2	Lower Grouse Creek	40.718555	-123.573442	8232156	Grouse Cr	LSF	1997	22.85	19.70						
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	1997	22.56	20.13	23.23	19.01	88	6/27/97	9/22/97	
HSU FSP	4034	GRSTR94/GRSTR95/GRSTR96/GRSTR97/GRSTR98	40.718317	-123.574023	8232156	Grouse Cr	LSF	1998	22.82	20.07	23.23	18.65	102	6/25/98	10/4/98	Y
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	1998	22.82	20.07	23.23	18.65	102	6/25/98	10/4/98	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	1999	20.84	18.32	21.99	17.66	110	6/11/99	9/28/99	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2000	21.80	20.37	22.16	18.59	122	6/13/00	10/12/00	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2001	22.64	20.52	23.33	19.10	88	6/15/01	9/10/01	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2002	22.23	20.37	22.99	18.30	111	6/5/02	9/23/02	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2003	22.87	20.26	23.33	18.36	104	6/3/03	9/14/03	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2005	20.88	18.35	21.16	17.72	111	6/10/05	9/28/05	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2013	22.74	20.29	23.69	18.70	169	7/16/13	12/31/13	
USFS AQS	GRSSTR_H2O_temp	GRSSTR_H2O_temp	40.717542	-123.574037	8232156	Grouse Cr	LSF	2014	23.52	21.31	24.10	19.95	201	6/12/14	12/29/14	
HSU FSP	4035	GRODEV94/GRODEV95/GRODEV96/GRODEV98	40.722047	-123.565544	8232122	Grouse Cr	LSF	1994	22.32	21.10	22.94	18.88	102	6/16/94	9/25/94	Y
USFS AQS	GRODEV_H2O_temp	GRODEV_H2O_temp	40.721867	-123.564930	8232122	Grouse Cr	LSF	1994	22.32	21.10	22.94	18.88	102	6/16/94	9/25/94	
HSU FSP	4035	GRODEV94/GRODEV95/GRODEV96/GRODEV98	40.722047	-123.565544	8232122	Grouse Cr	LSF	1995	21.77	19.30	22.56	17.70	118	6/14/95	10/9/95	Y
USFS AQS	GRODEV_H2O_temp	GRODEV_H2O_temp	40.721867	-123.564930	8232122	Grouse Cr	LSF	1995	21.77	19.30	22.56	17.70	118	6/14/95	10/9/95	
HSU FSP	4035	GRODEV94/GRODEV95/GRODEV96/GRODEV98	40.722047	-123.565544	8232122	Grouse Cr	LSF	1996	23.09	20.60	23.57	18.59	99	6/6/96	9/12/96	Y

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
HSU FSP	4036	GROMO96/GROMO97	40.732773	-123.544635	8232122	Grouse Cr	LSF	1996	23.62	20.57	23.96	18.38	117	6/6/96	9/30/96	Y
USFS AQS	GRODEV_H2O_temp	GRODEV_H2O_temp	40.721867	-123.564930	8232122	Grouse Cr	LSF	1996	23.09	20.60	23.57	18.59	99	6/6/96	9/12/96	
USFS AQS	Grouse_nearMouth_H2O_temp	Grouse_nearMouth_H2O_temp	40.732481	-123.545223	8232122	Grouse Cr	LSF	1996	23.62	20.57	23.96	18.38	118	6/6/96	10/1/96	
HSU FSP	4036	GROMO96/GROMO97	40.732773	-123.544635	8232122	Grouse Cr	LSF	1997	23.74	20.15	24.47	19.01	88	6/27/97	9/22/97	
HSU FSP	4035	GRODEV94/GRODEV95/GRODEV96/GRODEV98	40.722047	-123.565544	8232122	Grouse Cr	LSF	1998	22.43	20.07	23.03	18.71	89	7/2/98	9/28/98	Y
USFS AQS	GRODEV_H2O_temp	GRODEV_H2O_temp	40.721867	-123.564930	8232122	Grouse Cr	LSF	1998	22.43	20.07	23.03	18.71	89	7/2/98	9/28/98	
USFS AQS	Grouse_nearMouth_H2O_temp	Grouse_nearMouth_H2O_temp	40.732481	-123.545223	8232122	Grouse Cr	LSF	1999	22.30	19.21	23.24	18.55	113	6/8/99	9/28/99	
USFS AQS	Hells_Half_Acre_H2O_Temp	Hells_Half_Acre_H2O_Temp	40.767294	-123.517982	8232076	Hells Half Acre Cr	LSF	2001	13.87	12.45	14.47	11.55	139	6/8/01	10/24/01	
USFS AQS	Monroe_H2O_Temp	Monroe_H2O_Temp	40.674205	-123.509441	8232312	Monroe Cr	LSF	2001	14.63	13.77	15.23	13.16	130	6/7/01	10/14/01	
USFS AQS	Monroe_H2O_Temp	Monroe_H2O_Temp	40.674205	-123.509441	8232312	Monroe Cr	LSF	2002	14.85	14.05	15.62	13.10	131	6/8/02	10/16/02	
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	1995	17.71	16.06	18.36	14.36	118	6/14/95	10/9/95	
HSU FSP	4032	MOSQTO96/MOSQTO97/MOSQTO98	40.719849	-123.620595	8232132	Mosquito Cr	LSF	1996	17.41	16.21	18.00	14.36	99	6/6/96	9/12/96	Y
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	1996	17.41	16.21	18.00	14.36	99	6/6/96	9/12/96	
HSU FSP	4032	MOSQTO96/MOSQTO97/MOSQTO98	40.719849	-123.620595	8232132	Mosquito Cr	LSF	1997	17.29	15.77	17.68	15.02	88	6/27/97	9/22/97	Y
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	1997	17.29	15.77	17.68	15.02	88	6/27/97	9/22/97	
HSU FSP	4032	MOSQTO96/MOSQTO97/MOSQTO98	40.719849	-123.620595	8232132	Mosquito Cr	LSF	1998	17.32	16.03	17.68	14.74	89	7/2/98	9/28/98	Y
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	1998	17.32	16.03	17.68	14.74	89	7/2/98	9/28/98	
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	1999	15.88	14.78	16.61	14.11	110	6/11/99	9/28/99	
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	2000	16.90	15.55	17.08	14.34	122	6/13/00	10/12/00	
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	2001	17.24	15.56	17.72	14.76	88	6/15/01	9/10/01	
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	2002	17.19	15.88	17.56	14.31	111	6/5/02	9/23/02	
USFS AQS	GRMOSQ_H2O_temp	GRMOSQ_H2O_temp	40.719979	-123.620824	8232132	Mosquito Cr	LSF	2003	17.45	16.50	17.72	14.77	104	6/3/03	9/14/03	
USFS AQS	NF_Mingo_012_H2O_Temp	NF_Mingo_012_H2O_Temp	40.789073	-123.596546	8232040	NF Mingo Cr	LSF	2001	11.49	11.16	11.77	10.81	131	6/6/01	10/14/01	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	1993					49	8/30/93	10/17/93	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	1995	17.52	16.01	18.14	14.76	111	6/14/95	10/2/95	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	1995	18.17	16.19	18.79	14.86	118	6/14/95	10/9/95	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	1996	18.28	16.81	18.47	15.36	104	6/7/96	9/18/96	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	1996	19.19	17.29	19.54	15.86	97	6/7/96	9/11/96	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	1997	18.07	16.58	18.47	15.89	89	6/26/97	9/22/97	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	1997	18.54	16.38	19.19	15.62	88	6/26/97	9/21/97	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	1998	17.96	16.65	18.31	15.70	108	6/19/98	10/4/98	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	1998	18.14	16.32	18.49	15.28	108	6/20/98	10/5/98	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	1999	16.54	15.59	17.08	14.96	112	6/8/99	9/27/99	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	1999	17.41	16.01	18.05	15.35	112	6/8/99	9/27/99	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	2000	17.81	16.42	18.04	15.28	127	6/7/00	10/11/00	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	2000	19.02	16.97	19.34	15.74	121	6/13/00	10/11/00	
USFS AQS	MADMO_H2O_temp	MADMO_H2O_temp	40.882178	-123.611833	8231938	Old Campbell Cr	LSF	2001	18.72	16.92	19.18	16.05	110	6/1/01	9/18/01	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	2011	16.15	15.05	16.46	14.68	96	7/16/11	10/19/11	
WRTC	Madden Cr at Br	Madden Cr at Br	40.876652	-123.620971	8231938	Old Campbell Cr	LSF	2011	16.15	15.05	16.46	14.68	96	7/16/11	10/19/11	Y
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	2013	17.64	16.40	18.22	15.58	131	7/12/13	11/19/13	
USFS AQS	MADBRG_H2O_temp	MADBRG_H2O_temp	40.876012	-123.622284	8231938	Old Campbell Cr	LSF	2014	18.07	16.71	18.44	16.31	190	6/4/14	12/10/14	
HSU FSP	6013	PELLETREAU CREEK/SITE_94	40.616514	-123.477376	8232544	Pelletreau Cr	LSF	1996	20.80	18.57	21.11	17.22	105	6/18/96	9/30/96	Y
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	1996	20.80	18.57	21.11	17.22	157	6/18/96	11/21/96	
HSU FSP	6013	PELLETREAU CREEK/SITE_94	40.616514	-123.477376	8232544	Pelletreau Cr	LSF	1997	21.11	19.06	21.51	18.32	122	6/1/97	9/30/97	Y

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	1997	21.32	19.22	21.72	18.49	134	5/28/97	10/8/97	
GDRC	10000259	Pelletreau_(98)	40.609646	-123.486956	8232544	Pelletreau Cr	LSF	1998	22.63	18.02	23.23		87	6/24/98	9/18/98	
HSU FSP	986	PELLETREAU/PELLET1	40.602663	-123.490659	8232544	Pelletreau Cr	LSF	1998	22.63	18.02	23.23	17.16	87	6/24/98	9/18/98	
GDRC	10000259	Pelletreau_(98)	40.609646	-123.486956	8232544	Pelletreau Cr	LSF	1999	20.95	16.62	21.47		130	5/28/99	10/4/99	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2000	22.18	17.73	22.39		89	6/22/00	9/18/00	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2001	22.16	17.53	22.68		188	5/3/01	11/6/01	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2002	21.25	17.66	21.65		133	6/19/02	10/29/02	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2003	20.65	17.57	20.98		138	5/31/03	10/15/03	
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	2003	19.77	18.81	20.00		81	5/28/03	8/16/03	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2004	19.39	16.85	19.60		138	5/29/04	10/13/04	
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	2004	19.35	17.77	20.00	17.27	103	7/2/04	10/12/04	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2005	18.53	16.05	18.97		125	6/17/05	10/19/05	
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	2005	18.60	16.56	19.20	16.06	130	6/4/05	10/11/05	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2006	22.20	18.51	22.73		166	5/25/06	11/6/06	
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	2006	22.71	19.68	23.20	17.27	121	6/21/06	10/19/06	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2007	21.36	17.57	21.72		126	6/1/07	10/4/07	
USFS AQS	Pelletreau_H2O_temp	Pelletreau_H2O_temp	40.618522	-123.475001	8232544	Pelletreau Cr	LSF	2007	21.06	18.45	21.49	17.62	129	6/6/07	10/12/07	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2008	20.16	16.82	20.53		143	5/16/08	10/5/08	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2009	21.42	17.66	21.92		125	5/14/09	9/15/09	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2010	19.27	16.02	19.58		110	6/17/10	10/4/10	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2011	17.81	15.01	17.94		138	5/19/11	10/3/11	
USFS AQS	H2O_Temp_pelletreau1	H2O_Temp_pelletreau1	40.616923	-123.475954	8232544	Pelletreau Cr	LSF	2011	18.18	15.67	18.60	15.33	172	7/12/11	12/31/11	
GDRC	10000258	Pelletreau_(00)	40.602591	-123.490695	8232544	Pelletreau Cr	LSF	2012	20.09	16.06	20.79		151	5/18/12	10/15/12	
USFS AQS	H2O_Temp_pelletreau1	H2O_Temp_pelletreau1	40.616923	-123.475954	8232544	Pelletreau Cr	LSF	2012	18.52	16.86	19.82	15.98	360	1/1/12	12/31/12	
USFS AQS	H2O_Temp_pelletreau1	H2O_Temp_pelletreau1	40.616923	-123.475954	8232544	Pelletreau Cr	LSF	2013	19.65	17.35	21.10	16.42	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_pelletreau1	H2O_Temp_pelletreau1	40.616923	-123.475954	8232544	Pelletreau Cr	LSF	2014	17.59	16.40	18.01		195	1/1/14	7/14/14	
WRTC	SF Trinity R below Hyampom	SF Trinity R below Hyampom	40.658537	-123.495148	8232392	SF Trinity R	LSF									
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1989	24.83	21.24	25.28	20.27	96	6/3/89	9/6/89	
HSU FSP	6004	S FK TRINITY RIVER/SITE_27	40.668405	-123.502024	8233476	SF Trinity R	LSF	1990	22.98	22.16	23.39	20.60	151	5/4/90	10/1/90	Y
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1990	22.98	22.16	23.39	20.60	151	5/4/90	10/1/90	
HSU FSP	6004	S FK TRINITY RIVER/SITE_27	40.668405	-123.502024	8233476	SF Trinity R	LSF	1991	25.60	21.83	26.11	20.73	161	5/1/91	10/8/91	Y
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1991	25.60	21.83	26.11	20.73	166	4/26/91	10/8/91	
HSU FSP	6004	S FK TRINITY RIVER/SITE_27	40.668405	-123.502024	8233476	SF Trinity R	LSF	1992	25.80	22.32	26.72	20.87	152	5/6/92	10/4/92	Y
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1992	25.80	22.32	26.72	20.90	152	5/7/92	10/5/92	
HSU FSP	6004	S FK TRINITY RIVER/SITE_27	40.668405	-123.502024	8233476	SF Trinity R	LSF	1994	25.90	22.39	26.52	20.25	98	7/15/94	10/20/94	Y
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1994	25.88	22.38	26.53	20.24	101	7/15/94	10/23/94	
HSU FSP	6004	S FK TRINITY RIVER/SITE_27	40.668405	-123.502024	8233476	SF Trinity R	LSF	1997	25.86	22.42	26.58	21.54	122	6/1/97	9/30/97	Y
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1997	25.85	22.43	26.61	21.54	139	5/23/97	10/8/97	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	1999	22.92	20.77	23.89	20.19	144	6/19/99	11/9/99	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2000	26.09	22.60	26.44	20.92	153	6/21/00	11/20/00	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2004	25.93	23.32	26.08	21.82	107	6/28/04	10/12/04	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2005	25.49	22.65	25.91	21.63	130	6/4/05	10/11/05	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2007	25.41	22.49	26.08	20.76	129	6/6/07	10/12/07	
WRTC	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2010	25.38	22.51	25.77	20.77	92	7/8/10	10/7/10	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2011	24.32	21.57	24.85	20.92	109	7/14/11	10/30/11	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2012					100	6/29/12	12/31/12	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2013	25.84	23.10	26.43	21.17	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2014					270	1/1/14	12/31/14	
USFS AQS	H2O_Temp_sftr3	H2O_Temp_sftr3	40.668873	-123.503675	8233476	SF Trinity R	LSF	2015					174	1/1/15	6/23/15	
USFS AQS	SFT_below_Slide_H2O_temp	SFT_below_Slide_H2O_temp	40.701338	-123.518247	8232214	SF Trinity R	LSF	2003	26.92	23.50	27.14	21.38	108	6/18/03	10/3/03	
HSU FSP	4038	SFTUPR94/SFTUPR95/SFTUPR96/SFTUPR97	40.722377	-123.525665	8232128	SF Trinity R	LSF	1993					34	10/23/93	11/25/93	
HSU FSP	4038	SFTUPR94/SFTUPR95/SFTUPR96/SFTUPR97	40.722377	-123.525665	8232128	SF Trinity R	LSF	1994	26.00	23.96	26.60	21.42	101	6/17/94	9/25/94	
HSU FSP	4038	SFTUPR94/SFTUPR95/SFTUPR96/SFTUPR97	40.722377	-123.525665	8232128	SF Trinity R	LSF	1995	23.40	22.11	24.09	20.32	118	6/14/95	10/9/95	
HSU FSP	4038	SFTUPR94/SFTUPR95/SFTUPR96/SFTUPR97	40.722377	-123.525665	8232128	SF Trinity R	LSF	1996	25.13	23.83	25.48	21.19	99	6/6/96	9/12/96	
HSU FSP	4038	SFTUPR94/SFTUPR95/SFTUPR96/SFTUPR97	40.722377	-123.525665	8232128	SF Trinity R	LSF	1997	24.63	23.04	25.30	21.86	88	6/27/97	9/22/97	
HSU FSP	4037	SFKGRO95/SFKGRO96/SFKGRO97/SFKGRO98	40.733887	-123.544239	8232114	SF Trinity R	LSF	1995	23.38	21.44	24.09	19.54	93	7/10/95	10/10/95	Y
USFS AQS	SKFGRO_H2O_temp	SKFGRO_H2O_temp	40.734159	-123.544284	8232114	SF Trinity R	LSF	1995	23.38	21.44	24.09	19.54	93	7/10/95	10/10/95	
HSU FSP	4037	SFKGRO95/SFKGRO96/SFKGRO97/SFKGRO98	40.733887	-123.544239	8232114	SF Trinity R	LSF	1996	25.55	23.93	26.00	21.29	117	6/6/96	9/30/96	Y
USFS AQS	SKFGRO_H2O_temp	SKFGRO_H2O_temp	40.734159	-123.544284	8232114	SF Trinity R	LSF	1996	25.55	23.93	26.00	21.29	118	6/6/96	10/1/96	
HSU FSP	4037	SFKGRO95/SFKGRO96/SFKGRO97/SFKGRO98	40.733887	-123.544239	8232114	SF Trinity R	LSF	1997	25.13	23.13	26.00	21.86	89	6/26/97	9/22/97	Y
USFS AQS	SKFGRO_H2O_temp	SKFGRO_H2O_temp	40.734159	-123.544284	8232114	SF Trinity R	LSF	1997	25.13	23.13	26.00	21.86	88	6/27/97	9/22/97	
HSU FSP	4037	SFKGRO95/SFKGRO96/SFKGRO97/SFKGRO98	40.733887	-123.544239	8232114	SF Trinity R	LSF	1998	24.61	23.32	25.13	21.53	86	6/19/98	9/12/98	Y
USFS AQS	SKFGRO_H2O_temp	SKFGRO_H2O_temp	40.734159	-123.544284	8232114	SF Trinity R	LSF	1998	24.61	23.32	25.13	21.53	86	6/19/98	9/12/98	
USFS AQS	SKFGRO_H2O_temp	SKFGRO_H2O_temp	40.734159	-123.544284	8232114	SF Trinity R	LSF	1999					54	6/8/99	7/31/99	
CDFW	SF Trinity R below Surprise Cr	SF Trinity R below Surprise Cr	40.787916	-123.558743	8232048	SF Trinity R	LSF	2015	26.34	25.25	27.14	20.18	92	6/18/15	9/17/15	
CDFW	SF Trinity R at Todd Ranch	SF Trinity R at Todd Ranch	40.800656	-123.556916	8232030	SF Trinity R	LSF	2015	28.02	25.56	28.54	20.41	92	6/18/15	9/17/15	
CDFW	SF Trinity R at Low Bridge	SF Trinity R at Low Bridge	40.834397	-123.567309	8231994	SF Trinity R	LSF	2015	27.45	26.29	27.92	21.02	92	6/18/15	9/17/15	
USFS AQS	SouthForkaboveMadden	SouthForkaboveMadden	40.880674	-123.611957	8231946	SF Trinity R	LSF	2011	25.05	23.55	25.65	22.79	96	7/16/11	10/19/11	
WRTC	SF Trinity R above Madden Cr	SF Trinity R above Madden Cr	40.880294	-123.612032	8231946	SF Trinity R	LSF	2011	25.05	23.55	25.65	22.79	96	7/16/11	10/19/11	Y
USFS AQS	SouthForkaboveMadden	SouthForkaboveMadden	40.880674	-123.611957	8231946	SF Trinity R	LSF	2013	27.79	25.90	28.54	23.49	160	7/12/13	12/18/13	
USFS AQS	SouthForkaboveMadden	SouthForkaboveMadden	40.880674	-123.611957	8231946	SF Trinity R	LSF	2014	28.65	26.52	29.07	24.69	209	6/4/14	12/29/14	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	1993					55	10/23/93	12/16/93	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	1995	25.07	23.46	25.89	20.68	105	6/27/95	10/9/95	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	1996	26.51	24.93	27.29	22.11	94	6/7/96	10/1/96	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	1997	25.66	24.00	26.23	22.55	88	6/26/97	9/21/97	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	1998	25.89	24.46	26.39	22.49	98	6/30/98	10/5/98	
USFS AQS	SFOCPL_H2O_temp	SFOCPL_H2O_temp	40.880817	-123.611682	8231928	SF Trinity R	LSF	1998				17.08	59	7/24/98	9/20/98	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	1999	24.08	22.63	25.44	21.63	105	6/15/99	9/27/99	
USFS AQS	SFOCPL_H2O_temp	SFOCPL_H2O_temp	40.880817	-123.611682	8231928	SF Trinity R	LSF	1999	23.14	21.59	23.89	20.88	105	6/15/99	9/27/99	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2001	26.46	24.77	27.40	23.26	109	6/23/01	10/9/01	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2002	26.52	24.85	27.24	22.49	212	4/19/02	12/31/02	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2003	24.62	23.40	25.16	22.63	280	1/1/03	10/7/03	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2004				23.50	77	7/29/04	10/13/04	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2005				23.16	162	4/21/05	10/13/05	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2006	28.17	26.36	28.72	21.98	248	4/8/06	12/31/06	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2007	27.01	24.79	27.73	22.87	365	1/1/07	12/31/07	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2008	24.30	22.76	25.07	22.26	366	1/1/08	12/31/08	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2009	27.87	25.83	28.37	22.80	365	1/1/09	12/31/09	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2010				22.24	234	1/1/10	12/31/10	
USFS AQS	SFMAD_H2O_temp	SFMAD_H2O_temp	40.880016	-123.608259	8231928	SF Trinity R	LSF	2011	24.73	23.17	25.33		62	7/16/11	9/19/11	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2011	24.63	23.21	25.16	22.42	365	1/1/11	12/31/11	
WRTC	SF Trinity R below Madden Cr	SF Trinity R below Madden Cr	40.881823	-123.602231	8231928	SF Trinity R	LSF	2011	24.73	23.17	25.33		62	7/16/11	9/19/11	Y
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2012	26.27	24.48	26.89	23.11	300	1/1/12	10/26/12	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2013	27.35	25.48	28.05	22.93	187	4/19/13	10/22/13	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2014				24.11	148	7/19/14	12/13/14	
USFWS	SFTR1	SF Trinity R at mouth	40.889440	-123.602780	8231928	SF Trinity R	LSF	2015	28.28	25.95	29.04	21.33	247	4/29/15	12/31/15	
USFS AQS	Sims_Creek_H2O_Temp	Sims_Creek_H2O_Temp	40.721267	-123.585628	8232158	Sims Cr	LSF	2001	14.20	13.07	14.47	12.50	131	6/6/01	10/14/01	
USFS AQS	Sims_Creek_H2O_Temp	Sims_Creek_H2O_Temp	40.721267	-123.585628	8232158	Sims Cr	LSF	2002	13.48	12.83	13.70	12.08	95	7/21/02	10/23/02	
USFS AQS	Surprise_014_H2O_Temp	Surprise_014_H2O_Temp	40.786235	-123.558146	8232050	Surprise Cr	LSF	2001	18.17	17.49	18.66	16.37	119	6/28/01	10/24/01	
HSU FSP	4039	UNDMO93	40.719621	-123.522252	8232134	Underwood Cr	LSF	1993					23	7/13/93	8/4/93	
USFS AQS	Underwood_H2O_Temp	Underwood_H2O_Temp	40.719423	-123.521071	8232134	Underwood Cr	LSF	2001	18.88	17.82	19.04	16.87	130	6/7/01	10/14/01	
USFS AQS	Underwood_H2O_Temp	Underwood_H2O_Temp	40.719423	-123.521071	8232134	Underwood Cr	LSF	2002	19.10	17.58	19.81	16.34	131	6/8/02	10/16/02	
USFS AQS	Eltapom_N_trib_H2O_Temp	Eltapom_N_trib_H2O_Temp	40.681625	-123.453202	8232284		LSF	2001	15.94	14.71	16.38	13.58	131	6/7/01	10/15/01	
USFS AQS	Eltapom_N_trib_H2O_Temp	Eltapom_N_trib_H2O_Temp	40.681625	-123.453202	8232284		LSF	2002	16.38	15.28	16.76	13.62	127	6/12/02	10/16/02	
GDRC	10000261	Pelletreau_(Trib_2)	40.583659	-123.487484	8233502		LSF	1999	14.99	14.27	15.75		130	5/28/99	10/4/99	
GDRC	10000261	Pelletreau_(Trib_2)	40.583659	-123.487484	8233502		LSF	2000	15.77	14.84	15.91		89	6/22/00	9/18/00	
GDRC	10000261	Pelletreau_(Trib_2)	40.583659	-123.487484	8233502		LSF	2001	15.49	14.87	15.81		182	5/3/01	10/31/01	
GDRC	10000261	Pelletreau_(Trib_2)	40.583659	-123.487484	8233502		LSF	2003	16.96	16.37	17.32		138	5/31/03	10/15/03	
GDRC	10000261	Pelletreau_(Trib_2)	40.583659	-123.487484	8233502		LSF	2004	16.09	15.19	16.38		140	5/27/04	10/13/04	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	1998	17.87	16.03	18.31		87	6/24/98	9/18/98	
HSU FSP	987	PELLETREAU TRIB./PELLETR1	40.600758	-123.492006	8233494		LSF	1998	17.87	16.03	18.31	14.90	87	6/24/98	9/18/98	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	1999	16.94	15.25	17.35		130	5/28/99	10/4/99	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2001	18.50	16.25	19.12		181	5/3/01	10/30/01	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2004	17.14	15.90	17.48		140	5/27/04	10/13/04	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2005	16.11	15.05	16.54		125	6/17/05	10/19/05	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2006	20.05	18.01	20.48		166	5/25/06	11/6/06	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2007	18.05	16.31	18.58		125	6/1/07	10/3/07	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2008	17.31	15.92	17.72		143	5/16/08	10/5/08	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2009	18.87	16.90	19.32		125	5/14/09	9/15/09	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2010	16.87	15.29	17.37		110	6/17/10	10/4/10	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2011	15.67	14.49	16.30		138	5/19/11	10/3/11	
GDRC	10000260	Pelletreau_(Trib_1)	40.600765	-123.491918	8233494		LSF	2012	16.47	15.57	17.13		151	5/18/12	10/15/12	
USFS AQS	Clark_H2O_Temp	Clark_H2O_Temp	40.726799	-123.418708	NA		LSF	2001	12.44	11.94	12.93	11.20	131	6/8/01	10/16/01	
USFS AQS	Eltapom_S_trib_H2O_Temp	Eltapom_S_trib_H2O_Temp	40.677769	-123.459862	NA		LSF	2001	12.93	12.82	12.93	12.42	131	6/7/01	10/15/01	
USFS AQS	First_011_H2O_Temp	First_011_H2O_Temp	40.819869	-123.543371	NA		LSF	2001	14.09	12.28	14.47	11.62	119	6/28/01	10/24/01	
USFS AQS	Grouse_trib_H2O_Temp	Grouse_trib_H2O_Temp	40.720880	-123.559780	NA		LSF	2001	15.29	14.69	15.62	13.84	130	6/7/01	10/14/01	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
WRTC	Crystal Oxbow	Crystal Oxbow	40.631372	-123.477445	NA		LSF									
USFS AQS	Barker_062_H2O_Temp	Barker_062_H2O_Temp	40.611446	-123.118353	8232568	Barker Cr	MHF	2001	14.63	13.51	15.23	12.68	125	6/14/01	10/16/01	
USFS AQS	Barker_062_H2O_Temp	Barker_062_H2O_Temp	40.611446	-123.118353	8232568	Barker Cr	MHF	2002	14.58	13.53	14.85	12.47	126	6/14/02	10/17/02	
HSU FSP	7018	SITE51	40.565250	-123.111458	8232676	Barker Cr	MHF	1996	21.64	18.25	22.23	16.33	115	6/8/96	9/30/96	
HSU FSP	7018	SITE51	40.565250	-123.111458	8232676	Barker Cr	MHF	1997	21.74	18.06	22.47	16.86	100	6/1/97	9/8/97	
HSU FSP	6036	BIG CREEK/SITE_44	40.597892	-123.152178	8232588	Big Cr	MHF	1993	14.04	13.40	14.61	12.38	155	5/11/93	10/12/93	Y
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	1993	14.04	13.40	14.61	12.38	155	5/11/93	10/12/93	
HSU FSP	7016	SITE32	40.592354	-123.149978	8232588	Big Cr	MHF	1996	17.72	16.36	18.25	14.26	121	6/2/96	9/30/96	
HSU FSP	7016	SITE32	40.592354	-123.149978	8232588	Big Cr	MHF	1997	17.56	15.96	18.06	14.90	107	6/1/97	9/15/97	
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	2001	17.52	15.62	18.07	14.52	110	7/12/01	10/29/01	
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	2002	17.40	16.01	17.91	14.08	153	5/22/02	10/21/02	
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	2003	17.31	16.10	17.91	13.92	146	5/30/03	10/22/03	
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	2004	17.34	15.77	17.58	14.42	152	5/13/04	10/11/04	
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	2005	16.27	14.99	16.79	14.23	142	5/28/05	10/16/05	
USFS AQS	Big_H2O_temp	Big_H2O_temp	40.611922	-123.158641	8232588	Big Cr	MHF	2006	17.29	16.07	17.60	13.45	140	6/8/06	10/25/06	
GMA	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	8232588	Big Cr	MHF	2007	17.48	15.97	18.08	14.15	115	5/26/07	9/17/07	
WRTC	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	8232588	Big Cr	MHF	2011	15.33	14.15	15.75	13.47	104	7/27/11	11/7/11	
WRTC	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	8232588	Big Cr	MHF	2012					67	8/16/12	10/21/12	
WRTC	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	8232588	Big Cr	MHF	2013	18.37	16.59	18.87	14.56	89	7/4/13	9/30/13	
WRTC	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	8232588	Big Cr	MHF	2014	19.07	17.46	20.03	15.65	117	7/16/14	11/9/14	
WRTC	Big Cr at 324 Br	Big Cr at 324 Br	40.614621	-123.159854	8232588	Big Cr	MHF	2015	19.24	17.40	19.63	14.77	174	6/10/15	11/30/15	
HSU FSP	7015	SITE31	40.551784	-123.143747	8232726	Big Cr	MHF	1995	20.95	18.49	21.66	17.08	110	6/24/95	10/11/95	
HSU FSP	7015	SITE31	40.551784	-123.143747	8232726	Big Cr	MHF	1996	23.10	20.80	23.42	18.11	121	6/2/96	9/30/96	
HSU FSP	7015	SITE31	40.551784	-123.143747	8232726	Big Cr	MHF	1997	23.03	19.85	23.47	18.70	107	6/1/97	9/15/97	
HSU FSP	7015	SITE31	40.551784	-123.143747	8232726	Big Cr	MHF	1998	23.13	20.45	23.66	18.55	101	6/26/98	10/4/98	
GMA	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2007	20.66	19.11	21.27	17.04	115	5/26/07	9/17/07	
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2010	20.53	18.51	21.15	16.74	214	5/14/10	12/13/10	
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2011	20.15	17.69	20.51	17.10	122	7/9/11	11/7/11	
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2012	19.98	18.15	20.77	17.13	138	7/19/12	12/3/12	
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2013	21.75	19.56	22.47	17.23	75	7/16/13	9/28/13	
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2014	21.66	19.88	22.78	17.85	142	7/16/14	12/4/14	
WRTC	Big Cr at Hwy 3	Big Cr at Hwy 3	40.553183	-123.144200	8232726	Big Cr	MHF	2015	22.67	20.40	23.38	16.87	120	6/10/15	10/7/15	
HSU FSP	7012	SITE22	40.588657	-123.067817	8232602	Carr Cr	MHF	1995	21.50	17.64	21.98	15.60	110	6/24/95	10/11/95	
HSU FSP	7012	SITE22	40.588657	-123.067817	8232602	Carr Cr	MHF	1996	22.38	19.17	22.98	16.83	121	6/2/96	9/30/96	
HSU FSP	7012	SITE22	40.588657	-123.067817	8232602	Carr Cr	MHF	1997	21.90	18.33	22.76	16.94	103	6/1/97	9/11/97	
HSU FSP	7013	SITE23	40.580723	-123.077864	8232608	Carr Cr	MHF	1995	22.28	18.92	22.76	17.49	110	6/24/95	10/11/95	
HSU FSP	7011	SITE21	40.563013	-123.104833	8232674	Carr Cr	MHF	1995	23.23	19.79	23.72	18.35	110	6/24/95	10/11/95	
HSU FSP	7011	SITE21	40.563013	-123.104833	8232674	Carr Cr	MHF	1997	26.09	20.77	26.79	19.47	100	6/1/97	9/8/97	
HSU FSP	6043	DITCH GULCH/SITE_56	40.416968	-123.178050	8236290	Ditch Gulch	MHF	1994	16.77	15.48	17.18	13.66	98	7/15/94	10/20/94	
USFS AQS	Ditch_Gulch_104_H2O_Temp	Ditch_Gulch_104_H2O_Temp	40.432281	-123.160322	8234760	Ditch Gulch	MHF	2002	16.43	16.00	16.76	14.04	133	6/13/02	10/23/02	
WRTC	Hayfork Cr at Gravel Mine	Hayfork Cr at Gravel Mine	40.547592	-123.167903	8232748	Hayfork Cr	MHF	2010	28.10	23.37	28.94	21.01	138	6/10/10	10/25/10	
WRTC	Hayfork Cr near Oak Street Br	Hayfork Cr near Oak Street Br	40.548928	-123.170658	8232748	Hayfork Cr	MHF	2010	28.60	26.31	30.75		74	7/7/10	10/7/10	
WRTC	Hayfork Cr at Gravel Mine	Hayfork Cr at Gravel Mine	40.547592	-123.167903	8232748	Hayfork Cr	MHF	2011	25.24	21.43	25.87	19.77	100	7/9/11	10/16/11	
WRTC	Hayfork Cr at Wetland	Hayfork Cr at Wetland	40.548645	-123.168590	8232748	Hayfork Cr	MHF	2011	24.47	20.88	25.07	19.88	100	7/9/11	10/16/11	
WRTC	Hayfork Cr at Gravel Mine	Hayfork Cr at Gravel Mine	40.547592	-123.167903	8232748	Hayfork Cr	MHF	2012	27.66	23.32	28.12	22.20	109	7/28/12	11/13/12	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
WRTC	Hayfork Cr at Wetland	Hayfork Cr at Wetland	40.548645	-123.168590	8232748	Hayfork Cr	MHF	2012	27.48	23.08	28.15	21.47	109	7/28/12	11/13/12	
WRTC	Hayfork Cr near Oak Street Br	Hayfork Cr near Oak Street Br	40.548928	-123.170658	8232748	Hayfork Cr	MHF	2014	27.40	24.64	29.12	23.14	142	7/16/14	12/4/14	
WRTC	Hayfork Cr below Tule Cr Conf (Pig Ranch)	Hayfork Cr below Tule Cr Conf (Pig Ranch)	40.554415	-123.219582	8232704	Hayfork Cr	MHF	2012	28.42	23.98	29.09	21.85	109	8/3/12	11/19/12	
WRTC	Hayfork Cr below Tule Cr Conf (Pig Ranch)	Hayfork Cr below Tule Cr Conf (Pig Ranch)	40.554415	-123.219582	8232704	Hayfork Cr	MHF	2013				21.08	155	7/30/13	12/31/13	
WRTC	Hayfork Cr below Tule Cr Conf (Pig Ranch)	Hayfork Cr below Tule Cr Conf (Pig Ranch)	40.554415	-123.219582	8232704	Hayfork Cr	MHF	2015	26.14	23.55	27.04	19.08	132	7/3/15	11/11/15	
WRTC	Hayfork Cr at Picket's 1	Hayfork Cr at Picket's 1	40.554415	-123.219582	8232704	Hayfork Cr	MHF									
HSU FSP	7002	SITE02	40.557269	-123.229418	8232686	Hayfork Cr	MHF	1995	26.35	22.35	28.38	20.29	81	6/24/95	9/12/95	
HSU FSP	7002	SITE02	40.557269	-123.229418	8232686	Hayfork Cr	MHF	1996	29.00	25.17	29.47	22.17	121	6/2/96	9/30/96	
HSU FSP	7002	SITE02	40.557269	-123.229418	8232686	Hayfork Cr	MHF	1997	28.70	24.34	29.75	23.00	90	6/1/97	8/29/97	
WRTC	Hayfork Cr at Mercel's Br	Hayfork Cr at Mercel's Br	40.557099	-123.228993	8232686	Hayfork Cr	MHF	2013	29.80	26.26	31.05	22.73	88	7/3/13	9/28/13	
HSU FSP	6045	HAYFORK CREEK/SITE_60	40.572826	-123.238454	8233504	Hayfork Cr	MHF	1994				20.73	94	7/19/94	10/20/94	Y
USFS AQS	HayfordCr_bValley_H20_Temp	HayfordCr_bValley_H20_Temp	40.572235	-123.238326	8233504	Hayfork Cr	MHF	1994				20.70	94	7/19/94	10/20/94	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	1997	14.48	14.22	14.50	13.99	138	5/21/97	10/5/97	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	1999	16.79	14.93	17.78	14.33	162	6/3/99	11/11/99	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2000	17.27	16.07	17.61	14.24	127	6/27/00	10/31/00	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2001	17.83	16.22	19.81		132	5/18/01	10/29/01	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2002	17.59	16.44	18.35	14.62	147	5/22/02	10/15/02	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2003	18.56	17.53	18.99	15.54	123	5/29/03	9/28/03	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2004	17.64	16.49	17.87	15.26	158	5/7/04	10/11/04	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2005	17.89	16.34	18.19	15.46	153	5/17/05	10/16/05	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2006	20.70	18.93	20.90	15.22	159	6/9/06	11/14/06	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2007	19.32	18.08	19.64	14.52	168	5/17/07	10/31/07	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2012	18.61	16.46	19.41	15.35	182	7/3/12	12/31/12	
USFS AQS	H2O_Temp_philpot1_old	H2O_Temp_philpot1	40.465597	-123.190365	8234718	Philpot Cr	MHF	2013					182	1/1/13	7/1/13	
USFS AQS	H2O_Temp_AREMP_CAPHL1	H2O_Temp_AREMP_CAPHL1	40.467984	-123.185134	8234670	Philpot Cr	MHF	2003	20.34	18.07	21.14	15.60	111	7/5/03	10/23/03	
USFS AQS	H20_Temp_AREMP_CAPHL2	H20_Temp_AREMP_CAPHL2	40.466903	-123.187928	8234670	Philpot Cr	MHF	2004	20.47	17.40	21.12	16.23	151	5/8/04	10/5/04	
USFS AQS	H2O_Temp_philpot1	H2O_Temp_philpot1	40.467047	-123.187239	8234670	Philpot Cr	MHF	2011	17.66	15.63	18.11	15.07	185	6/29/11	12/31/11	
USFS AQS	H2O_Temp_philpot1	H2O_Temp_philpot1	40.467047	-123.187239	8234670	Philpot Cr	MHF	2012	18.61	16.46	19.41	15.35	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_philpot1	H2O_Temp_philpot1	40.467047	-123.187239	8234670	Philpot Cr	MHF	2013	21.04	18.32	23.02		314	1/1/13	12/31/13	
USFS AQS	H2O_Temp_philpot1	H2O_Temp_philpot1	40.467047	-123.187239	8234670	Philpot Cr	MHF	2014	19.84	17.84	23.79	16.15	364	1/1/14	12/31/14	
USFS AQS	H2O_Temp_philpot1	H2O_Temp_philpot1	40.467047	-123.187239	8234670	Philpot Cr	MHF	2015	16.67	16.46	16.89	14.84	300	1/1/15	10/28/15	
USFS AQS	AREMP CAPHL002	AREMP CAPHL002	40.467634	-123.186700	8234670	Philpot Cr	MHF									
HSU FSP	6062	SALT CREEK/SITE_90	40.425112	-123.110923	8234790	Salt Cr	MHF	1996	19.34	17.91	19.59	15.39	78	7/3/96	9/18/96	Y
USFS AQS	Temp Salt_114_H2O_Temp	Temp Salt_114_H2O_Temp	40.425552	-123.115483	8234786	Salt Cr	MHF	1996	19.35	17.92	19.60	15.40	78	7/3/96	9/18/96	
USFS AQS	Temp Salt_114_H2O_Temp	Temp Salt_114_H2O_Temp	40.425552	-123.115483	8234786	Salt Cr	MHF	2001	18.66	16.59	19.42	15.22	125	6/22/01	10/24/01	
USFS AQS	Temp Salt_114_H2O_Temp	Temp Salt_114_H2O_Temp	40.425552	-123.115483	8234786	Salt Cr	MHF	2002	18.66	17.06	19.04	14.37	105	7/11/02	10/23/02	
WRTC	Salt Cr at USFS campground	Salt Cr at USFS campground	40.425720	-123.114904	8234786	Salt Cr	MHF	2010	18.76	17.14	19.41	15.05	137	7/3/10	11/16/10	
WRTC	Salt Cr at USFS campground	Salt Cr at USFS campground	40.425720	-123.114904	8234786	Salt Cr	MHF	2011	17.93	16.27	18.65	15.21	98	7/27/11	11/1/11	
WRTC	Salt Cr at USFS campground	Salt Cr at USFS campground	40.425720	-123.114904	8234786	Salt Cr	MHF	2013	19.69	18.37	19.96	15.61	83	7/3/13	9/23/13	
HSU FSP	7010	SITE15	40.440908	-123.135647	8234752	Salt Cr	MHF	1995	20.10	17.11	20.59	15.24	110	6/24/95	10/11/95	
HSU FSP	7010	SITE15	40.440908	-123.135647	8234752	Salt Cr	MHF	1996	20.77	18.60	21.15	16.05	121	6/2/96	9/30/96	
HSU FSP	7010	SITE15	40.440908	-123.135647	8234752	Salt Cr	MHF	1997	19.99	17.84	20.62	16.59	107	6/1/97	9/15/97	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
HSU FSP	7010	SITE15	40.440908	-123.135647	8234752	Salt Cr	MHF	1998	19.33	17.36	20.27	15.61	77	7/3/98	9/17/98	
HSU FSP	7009	SITE14	40.446972	-123.145999	8234734	Salt Cr	MHF	1995	21.88	18.39	22.31	16.78	110	6/24/95	10/11/95	
HSU FSP	7009	SITE14	40.446972	-123.145999	8234734	Salt Cr	MHF	1996	22.26	19.75	22.81	17.93	121	6/2/96	9/30/96	
HSU FSP	7007	SITE12	40.456739	-123.165319	8234706	Salt Cr	MHF	1996	27.37	22.62	28.09	20.00	121	6/2/96	9/30/96	
HSU FSP	7007	SITE12	40.456739	-123.165319	8234706	Salt Cr	MHF	1997	25.94	21.23	27.11	19.55	107	6/1/97	9/15/97	
WRTC	Salt Cr at Hwy 3	Salt Cr at Hwy 3	40.455470	-123.162658	8234706	Salt Cr	MHF	2012	22.75	19.34	24.12		74	8/11/12	10/23/12	
WRTC	Salt Cr at Hwy 3	Salt Cr at Hwy 3	40.455470	-123.162658	8234706	Salt Cr	MHF	2013	23.41	19.91	24.29	16.68	83	7/3/13	9/23/13	
HSU FSP	6042	SALT CREEK/SITE_55	40.490358	-123.167536	8234602	Salt Cr	MHF	1994	25.58	21.11	26.52	17.80	98	7/15/94	10/20/94	
USFS AQS	Temp Salt Creek at Mill Gulch 55 H2O temp	Temp Salt Creek at Mill Gulch 55 H2O temp	40.491157	-123.168068	8234602	Salt Cr	MHF	1994	25.60	21.12	26.56	17.81	98	7/15/94	10/20/94	
WRTC	Salt Cr near 31N38	Salt Cr near 31N38	40.496697	-123.171396	8234566	Salt Cr	MHF	2015	24.27	20.51	24.75	16.28	121	6/10/15	10/8/15	
HSU FSP	7006	SITE11	40.546101	-123.203927	8232782	Salt Cr	MHF	1995					65	8/9/95	10/12/95	
HSU FSP	7006	SITE11	40.546101	-123.203927	8232782	Salt Cr	MHF	1996	29.64	25.79	30.71		70	6/2/96	8/10/96	
HSU FSP	7006	SITE11	40.546101	-123.203927	8232782	Salt Cr	MHF	1997					30	6/1/97	6/30/97	
WRTC	Salt Cr at Tule Cr Rd Br	Salt Cr at Tule Cr Rd Br	40.548866	-123.204884	8232782	Salt Cr	MHF	2010	27.99	23.57	28.67	18.17	96	7/3/10	10/6/10	
WRTC	Salt Cr at Tule Cr Rd Br	Salt Cr at Tule Cr Rd Br	40.548866	-123.204884	8232782	Salt Cr	MHF	2011	27.50	23.25	28.25	20.14	100	7/9/11	10/16/11	
WRTC	Salt Cr at Tule Cr Rd Br	Salt Cr at Tule Cr Rd Br	40.548866	-123.204884	8232782	Salt Cr	MHF	2012	19.83	19.03	20.39	18.17	81	8/3/12	10/22/12	
WRTC	Salt Cr at Waterworks	Salt Cr at Waterworks	40.546635	-123.204543	8232782	Salt Cr	MHF	2012	30.84	23.64	32.51	21.42	81	8/3/12	10/22/12	
WRTC	Salt Cr at Tule Cr Rd Br	Salt Cr at Tule Cr Rd Br	40.548866	-123.204884	8232782	Salt Cr	MHF	2013	22.38	20.84	24.73	18.55	83	7/3/13	9/23/13	
WRTC	Salt Cr at Waterworks	Salt Cr at Waterworks	40.546635	-123.204543	8232782	Salt Cr	MHF	2013	30.36	24.58	31.54	20.86	70	7/3/13	9/10/13	
WRTC	Salt Cr at Tule Cr Rd Br	Salt Cr at Tule Cr Rd Br	40.548866	-123.204884	8232782	Salt Cr	MHF	2015	28.99	26.44	29.57	20.57	101	6/10/15	11/11/15	
USFS AQS	Summit_061_H2O_Temp	Summit_061_H2O_Temp	40.582453	-123.030746	8232618	Summit Cr	MHF	2001	18.12	16.63	18.66	15.78	111	6/28/01	10/16/01	
HSU FSP	7014	SITE24	40.582559	-123.073237	8232614	Summit Cr	MHF	1995	22.16	18.50	22.80	16.61	110	6/24/95	10/11/95	
USFS AQS	Tule_Creek_102_H2O_Temp	Tule_Creek_102_H2O_Temp	40.469854	-123.274723	8234680	Tule Cr	MHF	2001	12.71	12.30	12.93	11.52	125	6/22/01	10/24/01	
USFS AQS	Tule_Creek_102_H2O_Temp	Tule_Creek_102_H2O_Temp	40.469854	-123.274723	8234680	Tule Cr	MHF	2002	13.81	13.30	14.09	11.52	105	7/11/02	10/23/02	
HSU FSP	6015	TULE CREEK/SITE_113	40.501791	-123.261071	8232914	Tule Cr	MHF	1997	15.77	15.11	16.22	14.17	122	6/1/97	9/30/97	Y
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	8232914	Tule Cr	MHF	1997	15.78	15.12	16.23	14.18	138	5/21/97	10/5/97	
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	8232914	Tule Cr	MHF	2011	15.74	14.65	16.15	13.91	109	7/14/11	10/30/11	
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	8232914	Tule Cr	MHF	2012	17.13	15.66	17.77	14.51	182	7/3/12	12/31/12	
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	8232914	Tule Cr	MHF	2013					182	1/1/13	7/1/13	
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	8232914	Tule Cr	MHF	2014	19.43	17.49	20.10	15.55	175	7/10/14	12/31/14	
USFS AQS	H2O_Temp_tule1	H2O_Temp_tule1	40.501734	-123.260346	8232914	Tule Cr	MHF	2015	18.67	17.16	18.99	14.69	300	1/1/15	10/28/15	
HSU FSP	7017	SITE41	40.551267	-123.214362	8232810	Tule Cr	MHF	1996	24.88	20.95	25.49	19.25	121	6/2/96	9/30/96	
HSU FSP	7017	SITE41	40.551267	-123.214362	8232810	Tule Cr	MHF	1997	26.78	20.57	27.24	19.81	100	6/1/97	9/8/97	
WRTC	Tule Cr at Confluence	Tule Cr at Confluence	40.551444	-123.214069	8232810	Tule Cr	MHF	2011	20.91	17.65	21.29	16.63	121	7/9/11	11/6/11	
WRTC	Tule Cr at Tule Cr Rd Br	Tule Cr at Tule Cr Rd Br	40.524009	-123.224961	8232810	Tule Cr	MHF	2011	17.94	16.40	18.41	15.33	100	7/9/11	10/16/11	
WRTC	Tule Cr at Confluence	Tule Cr at Confluence	40.551444	-123.214069	8232810	Tule Cr	MHF	2012	19.34	17.54	20.15	16.93	109	8/3/12	11/19/12	
WRTC	Tule Cr at Tule Cr Rd Br	Tule Cr at Tule Cr Rd Br	40.524009	-123.224961	8232810	Tule Cr	MHF	2012	17.00	16.25	17.63	15.20	81	8/3/12	10/22/12	
WRTC	Tule Cr at Confluence	Tule Cr at Confluence	40.551444	-123.214069	8232810	Tule Cr	MHF	2013				18.47	119	7/30/13	11/25/13	
WRTC	Tule Cr at Tule Cr Rd Br	Tule Cr at Tule Cr Rd Br	40.524009	-123.224961	8232810	Tule Cr	MHF	2013	18.43	17.67	19.34	15.75	83	7/3/13	9/23/13	
WRTC	Tule Cr at Tule Cr Rd Br	Tule Cr at Tule Cr Rd Br	40.524009	-123.224961	8232810	Tule Cr	MHF	2015	19.44	18.72	19.84	15.62	121	6/10/15	10/8/15	
USFS AQS	Philpot_trib_111_H2O_Temp	Philpot_trib_111_H2O_Temp	40.449227	-123.218365	8234720		MHF	2001	16.00	14.75	16.38	13.84	125	6/22/01	10/24/01	
USFS AQS	Philpot_trib_111_H2O_Temp	Philpot_trib_111_H2O_Temp	40.449227	-123.218365	8234720		MHF	2002	17.14	16.09	17.52	13.63	105	7/11/02	10/23/02	
USFS AQS	Tule_trib_101_H2O_Temp	Tule_trib_101_H2O_Temp	40.490181	-123.258236	8234678		MHF	2001	15.72	14.18	16.38	13.35	125	6/22/01	10/24/01	
USFS AQS	Big_trib_063_H2O_Temp	Big_trib_063_H2O_Temp	40.611950	-123.154819	NA		MHF	2001	14.03	13.37	14.09	12.96	125	6/14/01	10/16/01	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	New_051_H2O_Temp	New_051_H2O_Temp	40.648880	-123.200693	NA		MHF	2001	11.60	10.76	11.77	10.31	127	6/13/01	10/17/01	
WRTC	Hayfork Wetland	Hayfork Wetland	40.547842	-123.167175	NA		MHF	2013				16.01	119	7/30/13	11/25/13	
USFS AQS	Butter_074_H2O_Temp	Butter_074_H2O_Temp	40.573217	-123.335559	8232694	Butter Cr	MSF	2001	17.19	14.91	18.28	12.84	124	6/15/01	10/16/01	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2002	17.08	16.02	17.60	14.04	144	5/24/02	10/14/02	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2003	19.13	17.56	19.54	15.04	126	5/28/03	9/30/03	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2007	17.37	16.13	17.76	13.56	128	6/7/07	10/12/07	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2008	16.75	15.60	17.12	13.50	144	6/20/08	11/10/08	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2011	16.70	15.05	17.18	14.23	172	7/12/11	12/31/11	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2012	17.34	15.82	17.92	14.50	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2013	18.69	16.93	19.27	14.64	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2014	19.40	17.47	19.84	15.24	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_butter1	H2O_Temp_butter1	40.585260	-123.383558	8232652	Butter Cr	MSF	2015	19.19	17.42	19.79	14.47	300	1/1/15	10/28/15	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1990	20.87	18.30	21.50	16.57	150	5/5/90	10/1/90	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1990	20.87	18.30	21.50	16.57	150	5/5/90	10/1/90	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1991	20.94	17.92	21.39	16.78	160	5/1/91	10/7/91	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1991	20.94	17.92	21.39	16.80	166	4/26/91	10/8/91	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1992	20.46	17.94	20.78	16.65	153	5/7/92	10/6/92	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1992	20.46	17.94	20.78	16.65	153	5/7/92	10/6/92	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1995	19.37	16.77	19.89	15.37	110	6/24/95	10/11/95	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1995	19.37	16.77	19.89	15.37	110	6/24/95	10/11/95	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1996	20.76	18.39	21.00	16.43	105	6/18/96	9/30/96	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1996	20.76	18.39	21.00	16.43	157	6/18/96	11/21/96	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1997	20.59	18.13	21.06	17.21	122	6/1/97	9/30/97	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1997	20.60	18.13	21.07	17.22	139	5/23/97	10/8/97	
HSU FSP	6007	BUTTER CREEK/SITE_35	40.570733	-123.440840	8232658	Butter Cr	MSF	1998	20.31	17.96	20.73	16.53	182	4/30/98	10/28/98	Y
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1998	20.31	17.97	20.73	16.53	181	5/1/98	10/28/98	
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	1999	19.14	16.26	19.76	15.73	145	6/18/99	11/9/99	
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	2000	19.34	17.61	19.90	16.14	153	6/21/00	11/20/00	
USFS AQS	ButterCr_at_McCaslin_H2O_Temp	ButterCr_at_McCaslin_H2O_Temp	40.567227	-123.433624	8232658	Butter Cr	MSF	2001	18.03	16.77	18.54	15.99	156	6/11/01	11/13/01	
USFS AQS	Lower_Butter_H20_temp	Lower_Butter_H20_temp	40.567289	-123.431874	8232658	Butter Cr	MSF	2002	18.33	16.94	18.70	15.50	159	5/15/02	10/20/02	
USFS AQS	ButterCr_at_McCaslin_H2O_Temp	ButterCr_at_McCaslin_H2O_Temp	40.567227	-123.433624	8232658	Butter Cr	MSF	2004	18.22	16.79	18.41	16.23	140	5/26/04	10/12/04	
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	2005	17.67	16.24	17.92	15.08	149	5/18/05	10/13/05	
USFS AQS	H2O_Temp_AREMP_CAINV	H2O_Temp_AREMP_CAINV	40.570802	-123.441050	8232658	Butter Cr	MSF	2005	19.32	17.14	19.53	16.41	110	5/22/05	9/8/05	
USFS AQS	Lower_Butter_H20_temp	Lower_Butter_H20_temp	40.567289	-123.431874	8232658	Butter Cr	MSF	2005	17.83	16.30	18.08	15.73	144	6/10/05	10/31/05	
USFS AQS	H2O_Temp_AREMP_CAINV	H2O_Temp_AREMP_CAINV	40.570802	-123.441050	8232658	Butter Cr	MSF	2006	20.60	18.31	20.98	15.82	143	5/6/06	9/25/06	
USFS AQS	Lower_Butter_H20_temp	Lower_Butter_H20_temp	40.567289	-123.431874	8232658	Butter Cr	MSF	2007	17.62	16.36	18.08	15.46	130	6/5/07	10/12/07	
USFS AQS	Lower_Butter_H20_temp	Lower_Butter_H20_temp	40.567289	-123.431874	8232658	Butter Cr	MSF	2008	16.96	15.89	17.26	15.30	185	5/5/08	11/5/08	
USFS AQS	ButterCr_H2O_Temp	ButterCr_H2O_Temp	40.571056	-123.441752	8232658	Butter Cr	MSF	2012	16.95	15.80	17.42	15.16	87	7/18/12	10/12/12	
USFS AQS	AREMP CAINV001	AREMP CAINV001	40.570612	-123.438392	8232658	Butter Cr	MSF									
USFS AQS	Cave_H2O_temp	Cave_H2O_temp	40.381303	-123.336659	8234908	Cave Cr	MSF	1989	16.46	15.57	16.78	14.91	90	6/1/89	8/29/89	
HSU FSP	6026	CAVE CREEK/SITE_21	40.382617	-123.337469	8234908	Cave Cr	MSF	1990	17.41	16.57	17.78	15.28	154	5/3/90	10/3/90	Y
USFS AQS	Cave_H2O_temp	Cave_H2O_temp	40.381303	-123.336659	8234908	Cave Cr	MSF	1990	17.41	16.57	17.78	15.28	154	5/3/90	10/3/90	
HSU FSP	6026	CAVE CREEK/SITE_21	40.382617	-123.337469	8234908	Cave Cr	MSF	1991	17.12	16.06	17.39	15.35	162	5/1/91	10/9/91	Y
USFS AQS	Cave_H2O_temp	Cave_H2O_temp	40.381303	-123.336659	8234908	Cave Cr	MSF	1991	17.12	16.06	17.39	15.35	169	4/24/91	10/9/91	
HSU FSP	6026	CAVE CREEK/SITE_21	40.382617	-123.337469	8234908	Cave Cr	MSF	1992	17.80	17.05	18.00	15.72	153	5/6/92	10/5/92	Y

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	Cave_H2O_temp	Cave_H2O_temp	40.381303	-123.336659	8234908	Cave Cr	MSF	1992	17.80	17.05	18.00	15.72	153	5/6/92	10/5/92	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2001	13.79	13.43	14.19		180	4/26/01	10/22/01	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2002	14.43	14.11	14.71		76	6/19/02	9/2/02	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2003	15.60	15.28	15.87		101	6/28/03	10/6/03	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2004	14.25	13.90	14.34		135	5/29/04	10/10/04	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2005	14.35	13.88	14.73		125	6/17/05	10/19/05	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2006	16.57	16.11	16.96		166	5/25/06	11/6/06	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2007	14.43	14.07	14.72		125	6/1/07	10/3/07	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2008	14.27	13.81	14.46		143	5/16/08	10/5/08	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2009	14.89	14.45	15.18		125	5/14/09	9/15/09	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2010	14.26	13.79	14.60		110	6/17/10	10/4/10	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2011	13.62	13.11	14.05		138	5/19/11	10/3/11	
GDRC	10000083	Cold_Springs	40.548779	-123.478565	8232740	Cold Springs Cr	MSF	2012	14.48	14.03	14.98		151	5/18/12	10/15/12	
USFS AQS	Cold_Springs_082_H2O_Temp	Cold_Springs_082_H2O_Temp	40.555334	-123.459737	8232710	Cold Springs Cr	MSF	2001	19.48	17.45	20.19	16.39	124	6/14/01	10/15/01	
USFS AQS	Cold_Springs_082_H2O_Temp	Cold_Springs_082_H2O_Temp	40.555334	-123.459737	8232710	Cold Springs Cr	MSF	2002	20.08	17.83	20.57	15.86	98	7/18/02	10/23/02	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2001	16.10	15.21	16.62	14.22	201	4/12/01	10/29/01	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2002	16.64	15.72	17.09	13.78	146	5/22/02	10/14/02	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2003	17.21	16.48	17.74	14.27	124	5/30/03	9/30/03	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2004	16.19	15.46	16.46	14.43	153	5/7/04	10/6/04	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2005	15.65	14.56	15.99	13.87	146	5/17/05	10/9/05	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2006	17.87	16.88	18.20	13.58	150	6/9/06	11/5/06	
USFS AQS	Glen_H2O_temp	Glen_H2O_temp	40.374781	-123.329057	8235008	Glen Cr	MSF	2007	16.57	15.65	16.94	13.96	139	5/17/07	10/2/07	
USFS AQS	Coyote_094_H2O_Temp	Coyote_094_H2O_Temp	40.515123	-123.356627	8232908	Indian Valley Cr	MSF	2001	18.44	15.36	19.42	13.75	124	6/15/01	10/16/01	
USFS AQS	Jims_Cr_084_H2O_Temp	Jims_Cr_084_H2O_Temp	40.510561	-123.388788	8232880	Jims Cr	MSF	2001	15.67	14.87	16.00	13.83	124	6/15/01	10/16/01	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2002	14.26	14.15	14.69		74	6/19/02	8/31/02	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2003	15.65	15.35	15.82		101	6/28/03	10/6/03	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2004	14.61	14.36	15.47		135	5/29/04	10/10/04	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2005	14.54	14.06	14.79		125	6/17/05	10/19/05	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2006	16.76	16.25	17.11		166	5/25/06	11/6/06	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2007	14.70	14.24	15.01		97	6/1/07	9/5/07	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2008	14.37	13.86	14.60		143	5/16/08	10/5/08	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2009	15.07	14.76	15.34		111	5/14/09	9/1/09	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2010	14.43	13.94	14.75		110	6/17/10	10/4/10	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2011	13.87	13.48	14.24		138	5/19/11	10/3/11	
GDRC	10000154	Johnson_(Trinity)	40.557245	-123.477360	8232678	Johnson Cr	MSF	2012	14.79	14.46	15.29		122	5/18/12	9/16/12	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	1999	15.47	13.16	16.19	11.46	148	6/17/99	11/11/99	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2000	14.12	13.65	15.08	11.13	127	6/27/00	10/31/00	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2001	14.06	13.18	15.08		47	6/19/01	8/4/01	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2002					50	5/24/02	7/12/02	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2003	18.48	15.47	20.04		62	5/28/03	7/28/03	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2004					73	5/7/04	7/18/04	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2005	18.20	15.98	18.43	13.71	147	5/18/05	10/11/05	
USFS AQS	Naufus_H2O_temp	Naufus_H2O_temp	40.458699	-123.321556	8234692	Naufus Cr	MSF	2007	16.49	13.52	17.62		81	5/16/07	8/4/07	
USFS AQS	H2O_Temp_naufus1	H2O_Temp_naufus1	40.458775	-123.323291	8234692	Naufus Cr	MSF	2011	15.61	13.84	16.25	11.81	185	6/29/11	12/31/11	
USFS AQS	H2O_Temp_naufus1	H2O_Temp_naufus1	40.458775	-123.323291	8234692	Naufus Cr	MSF	2012	13.79	13.43	14.39	12.16	365	1/1/12	12/31/12	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	H2O_Temp_naufus1	H2O_Temp_naufus1	40.458775	-123.323291	8234692	Naufus Cr	MSF	2013	14.97	13.26	15.61	12.46	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_naufus1	H2O_Temp_naufus1	40.458775	-123.323291	8234692	Naufus Cr	MSF	2014	20.87	14.99	22.18	13.79	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_naufus1	H2O_Temp_naufus1	40.458775	-123.323291	8234692	Naufus Cr	MSF	2015	14.71	13.43	15.15	12.60	166	1/1/15	10/28/15	
HSU FSP	6072	PLUMMER CREEK/SITE_57	40.478177	-123.386717	8234626	Plummer Cr	MSF	1994				13.54	87	7/29/94	10/23/94	Y
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	1994				13.55	87	7/29/94	10/23/94	
HSU FSP	6020	PLUMMER CREEK/SITE_134	40.475586	-123.416056	8234638	Plummer Cr	MSF	1997	20.82	18.97	21.19	18.16	108	6/15/97	9/30/97	Y
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	1997	20.84	18.98	21.22	18.16	109	6/15/97	10/1/97	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	1999	19.09	16.80	19.74	16.33	144	6/10/99	10/31/99	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2000	20.44	18.32	20.55	16.99	136	6/30/00	11/12/00	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2001	20.37	18.45	20.88	17.67	152	6/6/01	11/4/01	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2002	20.25	18.51	20.72	16.97	134	6/3/02	10/14/02	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2003	19.91	18.19	20.23	16.82	136	6/13/03	10/26/03	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2004	20.23	18.37	20.39	17.60	110	6/26/04	10/13/04	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2005	18.84	17.14	19.09	16.52	129	6/10/05	10/16/05	
USFS AQS	Plummer_H2O_temp	Plummer_H2O_temp	40.476150	-123.417004	8234638	Plummer Cr	MSF	2006	20.19	18.42	20.50	16.19	110	6/22/06	10/9/06	
WRTC	Plummer Cr above SF Trinity R (River Spirit)	Plummer Cr above SF Trinity R (River Spirit)	40.476006	-123.417146	8234638	Plummer Cr	MSF	2010	18.79	17.53	19.15	15.94	92	7/8/10	10/7/10	
WRTC	Plummer Cr above SF Trinity R (River Spirit)	Plummer Cr above SF Trinity R (River Spirit)	40.476006	-123.417146	8234638	Plummer Cr	MSF	2011					81	8/13/11	11/1/11	
WRTC	Plummer Cr above SF Trinity R (River Spirit)	Plummer Cr above SF Trinity R (River Spirit)	40.476006	-123.417146	8234638	Plummer Cr	MSF	2014					102	8/11/14	11/20/14	
WRTC	Plummer Cr above SF Trinity R (River Spirit)	Plummer Cr above SF Trinity R (River Spirit)	40.476006	-123.417146	8234638	Plummer Cr	MSF	2015	20.37	18.51	20.96	16.84	124	7/3/15	11/3/15	
USFS AQS	Post_115 H2O_temp	Post_115 H2O_temp	40.391786	-123.275117	8234872	Post Cr	MSF	1999	20.54	17.91	22.02	16.50	148	6/17/99	11/11/99	
USFS AQS	Post_115 H2O_temp	Post_115 H2O_temp	40.391786	-123.275117	8234872	Post Cr	MSF	2000	19.39	18.42	19.88	16.32	127	6/27/00	10/31/00	
USFS AQS	Post_115 H2O_temp	Post_115 H2O_temp	40.391786	-123.275117	8234872	Post Cr	MSF	2002	21.15	17.84	21.83	14.29	146	5/22/02	10/14/02	
USFS AQS	Post_115 H2O_temp	Post_115 H2O_temp	40.391786	-123.275117	8234872	Post Cr	MSF	2005	23.07	20.44	23.36		87	5/17/05	8/11/05	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2006	21.69	20.86	22.70		87	5/13/06	8/7/06	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2007	25.93	21.88	27.70		67	5/17/07	7/22/07	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2011	22.13	18.85	22.80	15.92	170	7/14/11	12/31/11	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2012	20.45	17.12	21.27	15.79	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2013	23.98	20.34	25.28	16.12	365	1/1/13	12/31/13	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2014	21.59	19.54	22.54	16.77	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_post1	H2O_Temp_post1	40.391570	-123.275471	8234872	Post Cr	MSF	2015	24.05	20.92	24.65	15.81	300	1/1/15	10/28/15	
USFS AQS	RattlesnakeCrU_H20_Temp	RattlesnakeCrU_H20_Temp	40.392730	-123.223338	8234888	Rattlesnake Cr	MSF	1990	20.79	19.01	21.39	17.15	154	5/3/90	10/3/90	
USFS AQS	Rattlesnake_121_H2O_Temp	Rattlesnake_121_H2O_Temp	40.393394	-123.221508	8234888	Rattlesnake Cr	MSF	2001	20.73	17.34	23.63		110	6/26/01	10/22/01	
USFS AQS	Rattlesnake_121_H2O_Temp	Rattlesnake_121_H2O_Temp	40.393394	-123.221508	8234888	Rattlesnake Cr	MSF	2002	16.60	16.24	16.76	14.16	132	6/14/02	10/23/02	
USFS AQS	RattlesnakeCrU_H20_Temp	RattlesnakeCrU_H20_Temp	40.392730	-123.223338	8234888	Rattlesnake Cr	MSF	2004	18.15	16.81	18.89	15.35	154	5/6/04	10/6/04	
USFS AQS	H2O_temp_Rattlesnake Creek abv_Post15	H2O_temp_Rattlesnake Creek abv_Post15	40.391312	-123.276177	8234886	Rattlesnake Cr	MSF	2000	18.23	16.84	19.08	14.69	127	6/27/00	10/31/00	
USFS AQS	H2O_temp_Rattlesnake Creek abv_Post15	H2O_temp_Rattlesnake Creek abv_Post15	40.391312	-123.276177	8234886	Rattlesnake Cr	MSF	2001	18.18	16.66	18.92	15.41	165	5/18/01	10/29/01	
USFS AQS	H2O_temp_Rattlesnake Creek abv_Post15	H2O_temp_Rattlesnake Creek abv_Post15	40.391312	-123.276177	8234886	Rattlesnake Cr	MSF	2003	19.57	17.85	20.03	15.33	124	5/30/03	9/30/03	
USFS AQS	H2O_temp_Rattlesnake Creek	H2O_temp_Rattlesnake Creek	40.391312	-123.276177	8234886	Rattlesnake Cr	MSF	2006	20.14	18.41	20.67	14.70	185	5/14/06	11/14/06	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
	abv_Post15	abv_Post15														
	H2O_temp_Rattlesnake Creek	H2O_temp_Rattlesnake Creek														
USFS AQS	abv_Post15	abv_Post15	40.391312	-123.276177	8234886	Rattlesnake Cr	MSF	2007	18.73	17.09	19.22	14.81	160	5/17/07	10/23/07	
USFS AQS	H2O_Temp_rattlesnake2	H2O_Temp_rattlesnake2	40.390233	-123.274533	8234886	Rattlesnake Cr	MSF	2011	16.88	15.76	17.30	14.39	170	7/14/11	12/31/11	
USFS AQS	H2O_Temp_rattlesnake2	H2O_Temp_rattlesnake2	40.390233	-123.274533	8234886	Rattlesnake Cr	MSF	2012					183	1/1/12	7/1/12	
USFS AQS	H2O_Temp_rattlesnake2	H2O_Temp_rattlesnake2	40.390233	-123.274533	8234886	Rattlesnake Cr	MSF	2013	17.92	16.20	18.72	14.31	182	7/3/13	12/31/13	
USFS AQS	H2O_Temp_rattlesnake2	H2O_Temp_rattlesnake2	40.390233	-123.274533	8234886	Rattlesnake Cr	MSF	2014	18.85	17.21	19.79	15.25	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_rattlesnake2	H2O_Temp_rattlesnake2	40.390233	-123.274533	8234886	Rattlesnake Cr	MSF	2015	17.24	16.31	17.72	14.32	300	1/1/15	10/28/15	
HSU FSP	6025	RATTLESNAKE CREEK/SITE_17	40.375540	-123.300835	8234928	Rattlesnake Cr	MSF	1990	20.79	19.01	21.39	17.15	154	5/3/90	10/3/90	
HSU FSP	6021	RATTLESNAKE CREEK/SITE_18	40.370554	-123.313000	8234942	Rattlesnake Cr	MSF	1991	24.21	19.02	25.89	17.25	160	5/3/91	10/9/91	Y
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	8234942	Rattlesnake Cr	MSF	1991					109	5/3/91	10/9/91	
HSU FSP	6021	RATTLESNAKE CREEK/SITE_18	40.370554	-123.313000	8234942	Rattlesnake Cr	MSF	1992	21.52	19.34	22.11	17.35	153	5/6/92	10/5/92	Y
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	8234942	Rattlesnake Cr	MSF	1992	21.52	19.34	22.11	17.35	153	5/6/92	10/5/92	
HSU FSP	6021	RATTLESNAKE CREEK/SITE_18	40.370554	-123.313000	8234942	Rattlesnake Cr	MSF	1998	21.03	19.36	21.13	17.58	98	7/1/98	10/6/98	Y
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	8234942	Rattlesnake Cr	MSF	1998	21.04	19.37	21.13	17.59	98	7/1/98	10/6/98	
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	8234942	Rattlesnake Cr	MSF	1999	19.51	17.90	20.60	16.60	148	6/17/99	11/11/99	
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	8234942	Rattlesnake Cr	MSF	2000	21.54	19.34	21.90	16.90	127	6/27/00	10/31/00	
USFS AQS	Rat_sta_H2O_temp	Rat_sta_H2O_temp	40.372404	-123.306268	8234942	Rattlesnake Cr	MSF	2001	22.00	19.22	22.64	17.53	201	4/12/01	10/29/01	
USFS AQS	Rat_sta_H2O_temp	Rat_sta_H2O_temp	40.372404	-123.306268	8234942	Rattlesnake Cr	MSF	2002	21.26	19.25	21.98	16.67	146	5/22/02	10/14/02	
USFS AQS	Rat_sta_H2O_temp	Rat_sta_H2O_temp	40.372404	-123.306268	8234942	Rattlesnake Cr	MSF	2003	21.17	19.70	21.81	17.17	120	6/3/03	9/30/03	
USFS AQS	RattlesnakeCrL_H20_Temp	RattlesnakeCrL_H20_Temp	40.371249	-123.312898	8234942	Rattlesnake Cr	MSF	2004	21.43	19.55	21.81	17.73	154	5/6/04	10/6/04	
USFS AQS	Rat_sta_H2O_temp	Rat_sta_H2O_temp	40.372404	-123.306268	8234942	Rattlesnake Cr	MSF	2006	21.62	20.25	21.97	16.48	150	6/9/06	11/5/06	
USFS AQS	Rat_sta_H2O_temp	Rat_sta_H2O_temp	40.372404	-123.306268	8234942	Rattlesnake Cr	MSF	2007	21.03	19.67	21.64	16.97	139	5/17/07	10/2/07	
WRTC	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	8234942	Rattlesnake Cr	MSF	2010	17.62	16.36	18.22	14.06	91	6/23/10	9/21/10	
USFS AQS	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	8234942	Rattlesnake Cr	MSF	2011	18.59	17.01	19.08	15.99	185	6/29/11	12/31/11	
USFS AQS	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	8234942	Rattlesnake Cr	MSF	2012	19.16	17.65	20.10	16.42	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	8234942	Rattlesnake Cr	MSF	2013	20.47	18.71	21.08	16.39	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	8234942	Rattlesnake Cr	MSF	2014	20.88	19.22	21.53	16.27	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_rattlesnake1	H2O_Temp_rattlesnake1	40.372184	-123.307335	8234942	Rattlesnake Cr	MSF	2015	21.45	19.82	21.99	15.75	300	1/1/15	10/28/15	
CDFW	SF Trinity R at Forest Glen Hell's Gate	SF Trinity R at Forest Glen Hell's Gate	40.369422	-123.315369	8234948	SF Trinity R	MSF	2015	25.10	23.45	25.96	18.73	105	6/12/15	9/24/15	
HSU FSP	6002	S FK TRINITY RIVER/SITE_23	40.378251	-123.333707	8234926	SF Trinity R	MSF	1993	19.31	17.51	19.89	15.61	129	5/28/93	10/3/93	
HSU FSP	6002	S FK TRINITY RIVER/SITE_23	40.378251	-123.333707	8234926	SF Trinity R	MSF	1994				19.73	94	7/19/94	10/20/94	Y
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	1994	25.76	22.69	26.53	19.71	101	7/15/94	10/23/94	
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	1997	24.60	21.72	25.28	20.35	138	5/21/97	10/5/97	
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	1999	21.75	19.33	22.46	18.55	148	6/17/99	11/11/99	
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	2002	24.10	21.86	24.52	19.23	126	6/11/02	10/14/02	
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	2003	23.49	21.81	24.41	19.01	111	6/12/03	9/30/03	
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	2004	24.74	22.71	25.10	20.64	153	5/7/04	10/6/04	
USFS AQS	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	2006	23.99	22.56	24.60	18.74	146	6/13/06	11/5/06	
WRTC	SFT_FG_H2O_temp	SFT_FG_H2O_temp	40.375200	-123.328445	8234926	SF Trinity R	MSF	2010	21.07	19.74	21.65	18.08	91	6/23/10	9/21/10	
USFS AQS	SFT_belowCave_H2O_temp	SFT_belowCave_H2O_temp	40.380862	-123.336602	8234910	SF Trinity R	MSF	1989	23.36	20.39	24.00	19.18	90	6/1/89	8/29/89	
HSU FSP	6027	S FK TRINITY RIVER/SITE_22	40.380813	-123.337537	8234910	SF Trinity R	MSF	1990	23.53	21.10	24.00	18.82	154	5/3/90	10/3/90	Y
USFS AQS	SFT_belowCave_H2O_temp	SFT_belowCave_H2O_temp	40.380862	-123.336602	8234910	SF Trinity R	MSF	1990	23.53	21.10	24.00	18.82	154	5/3/90	10/3/90	
HSU FSP	6027	S FK TRINITY RIVER/SITE_22	40.380813	-123.337537	8234910	SF Trinity R	MSF	1991	24.56	21.45	25.28	19.79	162	5/1/91	10/9/91	Y
USFS AQS	SFT_belowCave_H2O_temp	SFT_belowCave_H2O_temp	40.380862	-123.336602	8234910	SF Trinity R	MSF	1991	24.56	21.40	25.28	19.81	125	6/7/91	10/9/91	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
HSU FSP	6027	S FK TRINITY RIVER/SITE_22	40.380813	-123.337537	8234910	SF Trinity R	MSF	1992	25.49	22.19	26.28	20.21	153	5/6/92	10/5/92	Y
USFS AQS	SFT_belowCave_H2O_temp	SFT_belowCave_H2O_temp	40.380862	-123.336602	8234910	SF Trinity R	MSF	1992	25.49	22.19	26.28	20.21	153	5/6/92	10/5/92	
USFS AQS	SFT_belowCave_H2O_temp	SFT_belowCave_H2O_temp	40.380862	-123.336602	8234910	SF Trinity R	MSF	1993	21.52	19.98	22.00	18.04	152	5/14/93	10/12/93	
HSU FSP	6014	S FK TRINITY RIVER/SITE_110	40.475645	-123.418868	8234666	SF Trinity R	MSF	1997	25.71	22.78	26.31	21.60	108	6/15/97	9/30/97	Y
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	1997	25.72	22.78	26.33	21.59	109	6/15/97	10/1/97	
HSU FSP	6014	S FK TRINITY RIVER/SITE_110	40.475645	-123.418868	8234666	SF Trinity R	MSF	1998	25.24	22.11	26.13		66	6/17/98	8/21/98	
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	1999	22.96	20.70	23.71	19.98	144	6/10/99	10/31/99	
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	2000	24.65	22.86	25.09	21.11	136	6/30/00	11/12/00	
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	2001	23.88	22.42	24.75	21.24	152	6/6/01	11/4/01	
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	2002	24.57	22.89	24.92	20.81	134	6/3/02	10/14/02	
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	2003	25.39	23.32	25.79	21.26	136	6/13/03	10/26/03	
USFS AQS	SFTrinity_ab_Plummer_H2O_Temp	SFTrinity_ab_Plummer_H2O_Temp	40.476622	-123.419271	8234666	SF Trinity R	MSF	2004	25.17	23.26	25.44	21.88	109	6/27/04	10/13/04	
USFS AQS	SFTrinity_at_Plummer_H2O_Temp	SFTrinity_at_Plummer_H2O_Temp	40.475839	-123.419039	8234666	SF Trinity R	MSF	2005	23.66	21.44	24.05	20.62	113	6/10/05	10/16/05	
USFS AQS	SFTrinity_at_Plummer_H2O_Temp	SFTrinity_at_Plummer_H2O_Temp	40.475839	-123.419039	8234666	SF Trinity R	MSF	2007	25.44	23.27	26.09	21.59	139	5/27/07	10/12/07	
WRTC	SF Trinity R above Plummer Cr	SF Trinity R above Plummer Cr	40.476622	-123.419271	8234620	SF Trinity R	MSF	2011					81	8/13/11	11/1/11	
WRTC	SF Trinity R above Plummer Cr	SF Trinity R above Plummer Cr	40.476622	-123.419271	8234620	SF Trinity R	MSF	2015	24.77	23.59	25.72	19.93	124	7/3/15	11/3/15	
CDFW	SF Trinity R above Hitchcock Cr	SF Trinity R above Hitchcock Cr	40.544800	-123.454600	8232772	SF Trinity R	MSF	2015	26.73	25.06	27.36	20.80	152	6/12/15	11/10/15	
CDFW	SF Trinity R near Big Rock	SF Trinity R near Big Rock	40.557000	-123.461100	8232690	SF Trinity R	MSF	2015	25.86	24.42	26.11	20.76	152	6/12/15	11/10/15	
USFS AQS	SFT_at_ButterCr_H20_Temp	SFT_at_ButterCr_H20_Temp	40.570659	-123.443889	8232646	SF Trinity R	MSF	1990	25.41	22.66	25.78	20.88	150	5/5/90	10/1/90	
USFS AQS	SFT_at_ButterCr_H20_Temp	SFT_at_ButterCr_H20_Temp	40.570659	-123.443889	8232646	SF Trinity R	MSF	2005	25.82	22.45	26.21	21.71	106	6/28/05	10/11/05	
USFS AQS	SFT_at_ButterCr_H20_Temp	SFT_at_ButterCr_H20_Temp	40.570659	-123.443889	8232646	SF Trinity R	MSF	2006	28.09	24.54	28.70	21.47	121	6/22/06	10/20/06	
USFS AQS	SFT_at_ButterCr_H20_Temp	SFT_at_ButterCr_H20_Temp	40.570659	-123.443889	8232646	SF Trinity R	MSF	2007	26.42	23.48	27.11	21.28	123	6/7/07	10/7/07	
USFS AQS	SFT_at_ButterCr_H20_Temp	SFT_at_ButterCr_H20_Temp	40.570659	-123.443889	8232646	SF Trinity R	MSF	2008	24.71	22.07	25.25	21.31	137	6/22/08	11/5/08	
CDFW	SF Trinity R above Butter Cr	SF Trinity R above Butter Cr	40.570400	-123.444100	8232646	SF Trinity R	MSF	2015	28.08	25.31	28.84	20.75	152	6/12/15	11/10/15	
HSU FSP	6003	S FK TRINITY RIVER/SITE_26.5	40.573833	-123.443944	8232634	SF Trinity R	MSF	1990	25.41	22.66	25.78	20.88	150	5/5/90	10/1/90	Y
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	1990	25.40	22.66	25.78	20.88	150	5/5/90	10/1/90	
HSU FSP	6003	S FK TRINITY RIVER/SITE_26.5	40.573833	-123.443944	8232634	SF Trinity R	MSF	1991	26.07	22.81	26.50	21.53	161	5/1/91	10/8/91	Y
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	1991	26.07	22.81	26.50	21.53	166	4/26/91	10/8/91	
HSU FSP	6003	S FK TRINITY RIVER/SITE_26.5	40.573833	-123.443944	8232634	SF Trinity R	MSF	1992	25.65	22.82	26.22	21.48	153	5/6/92	10/5/92	Y
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	1992	25.65	22.82	26.22	21.54	153	5/7/92	10/6/92	
HSU FSP	6003	S FK TRINITY RIVER/SITE_26.5	40.573833	-123.443944	8232634	SF Trinity R	MSF	1997	26.88	23.71	27.36	22.62	122	6/1/97	9/30/97	Y
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	1997	26.83	23.74	27.39	22.64	139	5/23/97	10/8/97	
HSU FSP	6003	S FK TRINITY RIVER/SITE_26.5	40.573833	-123.443944	8232634	SF Trinity R	MSF	1998	25.41	22.95	26.13	21.76	127	6/24/98	10/28/98	Y
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	1998	25.41	22.96	26.13	21.77	127	6/24/98	10/28/98	
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	1999	24.73	21.23	25.22	20.42	145	6/18/99	11/9/99	
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	2000	27.23	23.63	27.66	21.76	153	6/21/00	11/20/00	
USFS AQS	SFT_below_Butter_H2O_temp	SFT_below_Butter_H2O_temp	40.571058	-123.444062	8232634	SF Trinity R	MSF	2004	26.07	23.47	26.57	21.88	107	7/2/04	10/16/04	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	1999	23.91	21.34	24.89	20.42	144	6/19/99	11/9/99	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2000	26.12	23.69	26.50	21.78	153	6/21/00	11/20/00	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2001	27.16	24.07	28.08	22.71	160	5/23/01	10/29/01	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2002	25.33	23.79	25.94		70	6/7/02	8/15/02	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2003	25.67	24.26	26.24	22.18	112	6/17/03	10/6/03	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2004	25.87	24.58	26.24	22.99	107	6/28/04	10/12/04	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2005	24.47	22.93	24.84	22.09	130	6/4/05	10/11/05	
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2006	25.71	24.57	26.40	21.50	120	6/22/06	10/19/06	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	SFT_HY_H2O_temp	SFT_HY_H2O_temp	40.604820	-123.448244	8232534	SF Trinity R	MSF	2007	26.12	24.09	26.59	22.55	129	6/6/07	10/12/07	
USFS AQS	H2O_Temp_sftr4	H2O_Temp_sftr4	40.605307	-123.448465	8232534	SF Trinity R	MSF	2011	23.06	21.48	23.52	21.03	109	7/14/11	10/30/11	
USFS AQS	H2O_Temp_sftr4	H2O_Temp_sftr4	40.605307	-123.448465	8232534	SF Trinity R	MSF	2013	25.70	24.24	26.45	22.32	181	7/4/13	12/31/13	
USFS AQS	H2O_Temp_sftr4	H2O_Temp_sftr4	40.605307	-123.448465	8232534	SF Trinity R	MSF	2014	26.68	24.79	27.43	22.84	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_sftr4	H2O_Temp_sftr4	40.605307	-123.448465	8232534	SF Trinity R	MSF	2015	26.76	25.09	27.43	20.54	142	1/1/15	10/6/15	
USFS AQS	E_trib_Butter_073_H2O_Temp	E_trib_Butter_073_H2O_Temp	40.567511	-123.351249	8232668		MSF	2001	13.04	12.52	13.32	11.74	124	6/15/01	10/16/01	
USFS AQS	Spikenard_Forest_083_H2O_Temp	Spikenard_Forest_083_H2O_Temp	40.532187	-123.443737	8232776		MSF	2001	16.54	15.61	16.76	15.00	124	6/14/01	10/15/01	
USFS AQS	Jesse_H20_temp	Jesse_H20_temp	40.580099	-123.445178	8232606		MSF	1989	17.27	15.60	17.78	15.00	96	6/2/89	9/5/89	
HSU FSP	6032	FLUME GULCH/SITE_16	40.376301	-123.306203	8234930		MSF	1991	20.35	18.14	20.72	16.72	160	5/3/91	10/9/91	Y
HSU FSP	6032	FLUME GULCH/SITE_16	40.376301	-123.306203	8234930		MSF	1992	20.43	18.64	20.89	17.04	153	5/6/92	10/5/92	Y
USFS AQS	W_Twin_123_H2O_Temp	W_Twin_123_H2O_Temp	40.381362	-123.230015	8234954		MSF	2001	15.62	14.84	16.00	13.92	119	6/26/01	10/22/01	
USFS AQS	W_Twin_123_H2O_Temp	W_Twin_123_H2O_Temp	40.381362	-123.230015	8234954		MSF	2002	16.11	15.53	16.38	13.55	105	7/11/02	10/23/02	
USFS AQS	E_Twin_122_H2O_Temp	E_Twin_122_H2O_Temp	40.381167	-123.227372	8234952		MSF	2001	17.85	16.05	18.66	14.77	119	6/26/01	10/22/01	
USFS AQS	E_Twin_122_H2O_Temp	E_Twin_122_H2O_Temp	40.381167	-123.227372	8234952		MSF	2002	16.22	15.54	16.76	13.75	105	7/11/02	10/23/02	
HSU FSP	6041	INDIAN VALLEY CREEK/SITE_54	40.516618	-123.328804	8232836		MSF	1994	17.02	14.62	17.66	12.54	98	7/15/94	10/20/94	Y
USFS AQS	IndianValleyCr_b_Dam_H20_temp	IndianValleyCr_b_Dam_H20_temp	40.519012	-123.341152	8232824		MSF	1994	17.03	14.62	17.67	12.53	101	7/15/94	10/23/94	
USFS AQS	Flume Creek 16 H2O temp	Flume Creek 16 H2O temp	40.380380	-123.304439	NA		MSF	1991	20.35	18.14	20.72	16.72	160	5/3/91	10/9/91	
USFS AQS	Flume Creek 16 H2O temp	Flume Creek 16 H2O temp	40.380380	-123.304439	NA		MSF	1992	20.43	18.64	20.89	17.04	153	5/6/92	10/5/92	
USFS AQS	Indian_trib_071_H2O_Temp	Indian_trib_071_H2O_Temp	40.552308	-123.386181	NA		MSF	2001	13.87	12.23	14.09	11.57	124	6/15/01	10/16/01	
USFS AQS	Klondike_124_H2O_Temp	Klondike_124_H2O_Temp	40.395464	-123.399825	NA		MSF	2001	14.42	14.15	14.85	13.44	119	6/26/01	10/22/01	
USFS AQS	Maddox_Lake_trib_072_H2O_Temp	Maddox_Lake_trib_072_H2O_Temp	40.555703	-123.416892	NA		MSF	2001	14.85	13.63	15.62	12.79	123	6/15/01	10/15/01	
USFS AQS	Nice_Seat_081_H2O_Temp	Nice_Seat_081_H2O_Temp	40.536000	-123.451511	NA		MSF	2001	14.85	14.19	15.23	13.12	124	6/14/01	10/15/01	
USFS AQS	W_trib_Butter_064_H2O_Temp	W_trib_Butter_064_H2O_Temp	40.585763	-123.384657	NA		MSF	2001	15.56	13.37	16.00	12.77	124	6/15/01	10/16/01	
USFS AQS	W_trib_Butter_064_H2O_Temp	W_trib_Butter_064_H2O_Temp	40.585763	-123.384657	NA		MSF	2002	16.16	13.70	16.38	12.74	127	6/12/02	10/16/02	
USFS AQS	Bridge_Gulch_091_H2O_Temp	Bridge_Gulch_091_H2O_Temp	40.497267	-123.102410	8234622	Bridge Gulch	UHF	2001	17.85	15.36	19.04		62	6/20/01	8/20/01	
USFS AQS	Bridge_Gulch_091_H2O_Temp	Bridge_Gulch_091_H2O_Temp	40.497267	-123.102410	8234622	Bridge Gulch	UHF	2002	16.00	15.15	16.38	13.10	99	7/11/02	10/17/02	
USFS AQS	Carrier_Gulch_093_H2O_Temp	Carrier_Gulch_093_H2O_Temp	40.516485	-123.089763	8232856	Carrier Gulch	UHF	2001	24.24	19.70	25.56	17.75	127	6/20/01	10/24/01	
USFS AQS	Carrier_Gulch_093_H2O_Temp	Carrier_Gulch_093_H2O_Temp	40.516485	-123.089763	8232856	Carrier Gulch	UHF	2002	16.87	16.05	17.52	13.86	127	6/13/02	10/17/02	
USFS AQS	Chanchelulla_113_H2O_Temp	Chanchelulla_113_H2O_Temp	40.428448	-123.050723	8234772	Chanchelulla Gulch	UHF	2001	15.84	14.08	16.38	13.23	125	6/21/01	10/23/01	
USFS AQS	Chanchelulla_113_H2O_Temp	Chanchelulla_113_H2O_Temp	40.428448	-123.050723	8234772	Chanchelulla Gulch	UHF	2002	15.56	14.15	16.00	12.63	98	7/12/02	10/17/02	
USFS AQS	Dubakella_132_H2O_Temp	Dubakella_132_H2O_Temp	40.354381	-123.136097	8234984	Dubakella Cr	UHF	2001	14.25	13.31	14.85	12.39	118	6/27/01	10/22/01	
USFS AQS	Dubakella_trib_131_H2O_Temp	Dubakella_trib_131_H2O_Temp	40.354059	-123.135672	8234984	Dubakella Cr	UHF	2001	15.94	14.94	16.76	13.74	118	6/27/01	10/22/01	
USFS AQS	Dubakella_132_H2O_Temp	Dubakella_132_H2O_Temp	40.354381	-123.136097	8234984	Dubakella Cr	UHF	2002	14.63	13.67	15.23	11.88	127	6/13/02	10/17/02	
USFS AQS	Dubakella_H2O_temp	Dubakella_H2O_temp	40.360987	-123.089469	8234964	Dubakella Cr	UHF	2001	16.98	15.33	17.67	14.01	166	5/17/01	10/29/01	
USFS AQS	Dubakella_H2O_temp	Dubakella_H2O_temp	40.360987	-123.089469	8234964	Dubakella Cr	UHF	2002	17.58	15.92	18.27	13.54	159	5/9/02	10/14/02	
USFS AQS	Dubakella_H2O_temp	Dubakella_H2O_temp	40.360987	-123.089469	8234964	Dubakella Cr	UHF	2004	17.65	16.14	17.78	14.18	147	5/13/04	10/6/04	
USFS AQS	Dubakella_H2O_temp	Dubakella_H2O_temp	40.360987	-123.089469	8234964	Dubakella Cr	UHF	2005	16.83	15.33	17.14	13.96	131	5/27/05	10/4/05	
USFS AQS	Dubakella_H2O_temp	Dubakella_H2O_temp	40.360987	-123.089469	8234964	Dubakella Cr	UHF	2007	17.47	16.08	18.11	13.76	145	6/7/07	10/29/07	
WRTC	East Fork Hayfork Cr	East Fork Hayfork Cr	40.502244	-123.035668	8232906	EF Hayfork Cr	UHF	2010	21.03	17.96	21.56	15.94	126	6/9/10	10/12/10	
WRTC	East Fork Hayfork Cr	East Fork Hayfork Cr	40.502244	-123.035668	8232906	EF Hayfork Cr	UHF	2015	21.11	18.92	21.44	15.60	110	7/3/15	10/20/15	
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	1999	23.44	18.82	24.22	18.12	162	6/3/99	11/11/99	
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	2000	20.82	18.96	21.61	18.48	127	6/27/00	10/31/00	
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	2001	20.81	18.47	21.99	17.43	163	5/19/01	10/28/01	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	2002	19.88	18.89	20.50	16.20	147	5/22/02	10/15/02	
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	2003	21.61	19.94	22.16	17.18	146	5/30/03	10/22/03	
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	2006	22.17	19.80	22.70	16.26	156	6/6/06	11/8/06	
USFS AQS	EFHF_H2O_temp	EFHF_H2O_temp	40.489412	-123.064382	8234578	EF Hayfork Cr	UHF	2007	18.02	17.51	18.39	15.42	173	5/11/07	10/30/07	
USFS AQS	H2O_Temp_efhf1	H2O_Temp_efhf1	40.489218	-123.068251	8234578	EF Hayfork Cr	UHF	2011	21.09	17.86	21.60	17.43	185	6/29/11	12/31/11	
USFS AQS	H2O_Temp_efhf1	H2O_Temp_efhf1	40.489218	-123.068251	8234578	EF Hayfork Cr	UHF	2012	20.92	18.17	22.08	17.51	258	1/1/12	12/31/12	
USFS AQS	H2O_Temp_efhf1	H2O_Temp_efhf1	40.489218	-123.068251	8234578	EF Hayfork Cr	UHF	2013	21.62	19.35	23.35		307	1/1/13	12/31/13	
USFS AQS	H2O_Temp_efhf1	H2O_Temp_efhf1	40.489218	-123.068251	8234578	EF Hayfork Cr	UHF	2014					271	1/1/14	12/31/14	
USFS AQS	H2O_Temp_efhf1	H2O_Temp_efhf1	40.489218	-123.068251	8234578	EF Hayfork Cr	UHF	2015	21.25	19.69	21.77		162	1/1/15	8/11/15	
USFS AQS	AREMP CANFH001	AREMP CANFH001	40.489209	-123.065552	8234578	EF Hayfork Cr	UHF									
USFS AQS	GoodsCreek_H2O_Temp	GoodsCreek_H2O_Temp	40.382065	-123.051190	8234902	Goods Cr	UHF	2005	15.68	14.31	15.84	13.39	152	5/18/05	10/16/05	
USFS AQS	GoodsCreek_H2O_Temp	GoodsCreek_H2O_Temp	40.382065	-123.051190	8234902	Goods Cr	UHF	2006	16.93	14.85	17.10	12.62	156	6/6/06	11/8/06	
USFS AQS	HallCity_H2O_Temp	HallCity_H2O_Temp	40.400443	-123.053096	8234858	Hall City Cr	UHF	2005	15.06	14.03	15.38	13.37	147	5/18/05	10/11/05	
USFS AQS	HallCity_H2O_Temp	HallCity_H2O_Temp	40.400443	-123.053096	8234858	Hall City Cr	UHF	2006	17.49	16.35	17.80	13.35	160	6/2/06	11/8/06	
USFS AQS	HallCity_H2O_Temp	HallCity_H2O_Temp	40.400443	-123.053096	8234858	Hall City Cr	UHF	2007	17.82	16.12	18.39	13.80	138	6/2/07	10/17/07	
USFS AQS	H2O_Temp_hayfork1	H2O_Temp_hayfork1	40.367859	-123.083019	8234960	Hayfork Cr	UHF	2011	18.36	15.87	19.03	14.70	175	7/9/11	12/31/11	
USFS AQS	H2O_Temp_hayfork1	H2O_Temp_hayfork1	40.367859	-123.083019	8234960	Hayfork Cr	UHF	2012	19.65	16.92	20.48	15.79	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_hayfork1	H2O_Temp_hayfork1	40.367859	-123.083019	8234960	Hayfork Cr	UHF	2013	22.18	18.64	22.87	15.68	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_hayfork1	H2O_Temp_hayfork1	40.367859	-123.083019	8234960	Hayfork Cr	UHF	2014	22.49	19.11	23.52	16.60	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_hayfork1	H2O_Temp_hayfork1	40.367859	-123.083019	8234960	Hayfork Cr	UHF	2015	23.31	19.52	24.00	16.01	307	1/1/15	11/15/15	
HSU FSP	7005	SITE05	40.378315	-123.079965	8234934	Hayfork Cr	UHF	1995	21.86	18.08	22.48	15.88	111	6/24/95	10/12/95	
HSU FSP	7005	SITE05	40.378315	-123.079965	8234934	Hayfork Cr	UHF	1996	22.90	19.70	23.43	17.13	121	6/2/96	9/30/96	
HSU FSP	6044	HAYFORK CREEK/SITE_58	40.472296	-123.061398	8234694	Hayfork Cr	UHF	1994	26.51	22.42	27.77	17.62	100	7/13/94	10/20/94	Y
USFS AQS	HF_blw_ShiellGulch_H2O_Temp	HF_blw_ShiellGulch_H2O_Temp	40.471337	-123.060908	8234694	Hayfork Cr	UHF	1994	26.51	22.43	27.77	17.60	100	7/13/94	10/20/94	
HSU FSP	7004	SITE04	40.469986	-123.059775	8234694	Hayfork Cr	UHF	1996	22.02	20.28	22.53	17.72	121	6/2/96	9/30/96	
HSU FSP	7004	SITE04	40.469986	-123.059775	8234694	Hayfork Cr	UHF	1997	22.07	20.04	23.00	18.38	103	6/1/97	9/11/97	
USFS AQS	HF_blw_ShiellGulch_H2O_Temp	HF_blw_ShiellGulch_H2O_Temp	40.471337	-123.060908	8234694	Hayfork Cr	UHF	2005	19.90	18.58	20.51	16.80	123	6/17/05	10/17/05	
USFS AQS	HayforkAboveSG_H2O_Temp	HayforkAboveSG_H2O_Temp	40.469007	-123.057632	8234694	Hayfork Cr	UHF	2006	23.31	21.75	23.80	16.62	147	6/15/06	11/8/06	
USFS AQS	HF_blw_ShiellGulch_H2O_Temp	HF_blw_ShiellGulch_H2O_Temp	40.471337	-123.060908	8234694	Hayfork Cr	UHF	2006	22.04	20.65	22.50	16.50	147	6/15/06	11/8/06	
USFS AQS	HayforkAboveSG_H2O_Temp	HayforkAboveSG_H2O_Temp	40.469007	-123.057632	8234694	Hayfork Cr	UHF	2007	16.08	15.03	16.62	13.53	146	5/31/07	10/23/07	
USFS AQS	HF_blw_ShiellGulch_H2O_Temp	HF_blw_ShiellGulch_H2O_Temp	40.471337	-123.060908	8234694	Hayfork Cr	UHF	2007	24.09	21.66	24.71	18.45	154	5/31/07	10/31/07	
USFS AQS	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	8234694	Hayfork Cr	UHF	2008	21.35	19.56	22.05	18.06	173	7/12/08	12/31/08	
USFS RSL	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	8234694	Hayfork Cr	UHF	2008	21.35	19.56	22.05	18.05	173	7/12/08	12/31/08	Y
USFS AQS	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	8234694	Hayfork Cr	UHF	2009	23.95	21.71	24.64	17.95	294	1/1/09	10/21/09	
USFS RSL	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	8234694	Hayfork Cr	UHF	2009	23.95	21.71	24.64	17.94	365	1/1/09	12/31/09	
USFS RSL	Hayfork_H2O_temp	Hayfork_H2O_temp	40.472746	-123.061494	8234694	Hayfork Cr	UHF	2010	20.86	19.33	21.38		209	1/1/10	7/28/10	
WRTC	Hayfork Cr at Shiel Gulch	Hayfork Cr at Shiel Gulch	40.469738	-123.059632	8234694	Hayfork Cr	UHF	2015	25.51	22.59	25.94	17.46	120	6/10/15	10/7/15	
WRTC	Hayfork Cr near EF Hayfork Cr	Hayfork Cr near EF Hayfork Cr	40.490476	-123.071319	8234580	Hayfork Cr	UHF	2011	21.43	18.95	21.96	18.02	100	7/9/11	10/16/11	
WRTC	Hayfork Cr near EF Hayfork Cr	Hayfork Cr near EF Hayfork Cr	40.490476	-123.071319	8234580	Hayfork Cr	UHF	2012	22.99	20.25	23.40	19.44	98	7/19/12	10/24/12	
WRTC	Hayfork Cr near EF Hayfork Cr	Hayfork Cr near EF Hayfork Cr	40.490476	-123.071319	8234580	Hayfork Cr	UHF	2014					112	7/16/14	12/31/14	
WRTC	Hayfork Cr near EF Hayfork Cr	Hayfork Cr near EF Hayfork Cr	40.490476	-123.071319	8234580	Hayfork Cr	UHF	2015					41	1/1/15	2/10/15	
HSU FSP	7003	SITE03	40.537745	-123.090818	8232786	Hayfork Cr	UHF	1995	23.68	20.78	24.47	18.76	81	6/24/95	9/12/95	
HSU FSP	7003	SITE03	40.537745	-123.090818	8232786	Hayfork Cr	UHF	1996	24.84	22.43	25.36	19.24	121	6/2/96	9/30/96	
HSU FSP	7003	SITE03	40.537745	-123.090818	8232786	Hayfork Cr	UHF	1997	24.01	20.86	24.97	19.40	103	6/1/97	9/11/97	
HSU FSP	7003	SITE03	40.537745	-123.090818	8232786	Hayfork Cr	UHF	1998	23.03	20.53	23.66	18.96	84	6/26/98	9/17/98	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	HF_Arnold_166_H2O_temp	HF_Arnold_166_H2O_temp	40.557483	-123.103009	8232760	Hayfork Cr	UHF	2001	25.96	21.40	26.88	19.59	163	5/19/01	10/28/01	
USFS AQS	HF_Arnold_166_H2O_temp	HF_Arnold_166_H2O_temp	40.557483	-123.103009	8232760	Hayfork Cr	UHF	2002	25.47	22.04	27.02	18.61	147	5/22/02	10/15/02	
USFS AQS	HF_Arnold_166_H2O_temp	HF_Arnold_166_H2O_temp	40.557483	-123.103009	8232760	Hayfork Cr	UHF	2003	25.84	22.73	26.84	19.36	146	5/30/03	10/22/03	
USFS AQS	HF_Arnold_166_H2O_temp	HF_Arnold_166_H2O_temp	40.557483	-123.103009	8232760	Hayfork Cr	UHF	2004	26.04	22.20	26.49	19.55	159	5/6/04	10/11/04	
USFS AQS	HF_Arnold_166_H2O_temp	HF_Arnold_166_H2O_temp	40.557483	-123.103009	8232760	Hayfork Cr	UHF	2006	25.74	22.59	26.50	18.62	156	6/6/06	11/8/06	
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	8232760	Hayfork Cr	UHF	2010	24.46	21.56	25.28	19.05	138	7/3/10	11/17/10	
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	8232760	Hayfork Cr	UHF	2011	22.08	20.04	22.78	19.00	122	7/9/11	11/7/11	
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	8232760	Hayfork Cr	UHF	2012	22.83	20.84	23.69	19.59	98	7/19/12	10/24/12	
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	8232760	Hayfork Cr	UHF	2013	25.19	22.59	25.91	19.49	75	7/16/13	9/28/13	
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	8232760	Hayfork Cr	UHF	2014	24.62	21.99	26.13	18.91	117	7/16/14	11/9/14	
WRTC	Hayfork Cr at Arnold Br	Hayfork Cr at Arnold Br	40.556859	-123.101037	8232760	Hayfork Cr	UHF	2015	24.21	22.26	24.99	18.19	143	7/3/15	11/22/15	
HSU FSP	728	201152	40.517215	-122.995823	8233662	NF EF Hayfork Cr	UHF	1997	19.78	17.01	20.81	15.64	120	6/3/97	9/30/97	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	1999	18.69	15.71	19.61	14.57	162	6/3/99	11/11/99	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2000	19.37	17.00	19.72	14.98	117	7/7/00	10/31/00	
USFS AQS	Potato_103_H2O_Temp	Potato_103_H2O_Temp	40.488472	-123.028082	8234604	Potato Cr	UHF	2001	17.03	16.00	17.52	14.88	125	6/21/01	10/23/01	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2001	19.61	17.11	20.35	15.90	163	5/19/01	10/28/01	
USFS AQS	Potato_103_H2O_Temp	Potato_103_H2O_Temp	40.488472	-123.028082	8234604	Potato Cr	UHF	2002	17.79	16.70	18.28	14.69	97	7/13/02	10/17/02	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2002	20.05	17.71	20.68	15.41	147	5/22/02	10/15/02	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2003	20.54	18.62	21.01	15.81	124	5/30/03	9/30/03	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2004	19.91	17.67	20.03	15.98	152	5/6/04	10/4/04	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2005	18.90	16.93	19.22	15.58	162	5/11/05	10/19/05	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2006	20.26	18.53	20.70	14.92	156	6/6/06	11/8/06	
USFS AQS	Potato_H2O_temp	Potato_H2O_temp	40.488627	-123.028082	8234604	Potato Cr	UHF	2007	19.31	17.44	19.87	15.51	173	5/11/07	10/30/07	
USFS AQS	H2O_Temp_potato1	H2O_Temp_potato1	40.489073	-123.028230	8234604	Potato Cr	UHF	2011	16.23	15.24	16.77	14.36	185	6/29/11	12/31/11	
USFS AQS	H2O_Temp_potato1	H2O_Temp_potato1	40.489073	-123.028230	8234604	Potato Cr	UHF	2012					172	1/1/12	6/20/12	
USFS AQS	H2O_Temp_potato1	H2O_Temp_potato1	40.489073	-123.028230	8234604	Potato Cr	UHF	2013	17.97	17.01	18.44	15.01	186	6/29/13	12/31/13	
USFS AQS	H2O_Temp_potato1	H2O_Temp_potato1	40.489073	-123.028230	8234604	Potato Cr	UHF	2014	18.09	17.33	18.49	15.64	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_potato1	H2O_Temp_potato1	40.489073	-123.028230	8234604	Potato Cr	UHF	2015					26	1/1/15	1/26/15	
USFS AQS	H2O_temp_CDFW_106WER016	H2O_temp_CDFW_106WER016	40.489229	-123.028579	8234604	Potato Cr	UHF									
USFS AQS	Sheill_Gulch_112_H2O_Temp	Sheill_Gulch_112_H2O_Temp	40.456216	-123.054713	8234700	Shiell Gulch	UHF	2001	16.27	15.56	16.76	14.48	125	6/21/01	10/23/01	
USFS AQS	Sheill_Gulch_112_H2O_Temp	Sheill_Gulch_112_H2O_Temp	40.456216	-123.054713	8234700	Shiell Gulch	UHF	2002	16.16	15.49	16.76	13.48	92	7/18/02	10/17/02	
USFS AQS	Sheill_Gulch_112_H2O_Temp	Sheill_Gulch_112_H2O_Temp	40.456216	-123.054713	8234700	Shiell Gulch	UHF	2005	15.79	14.70	15.99	13.89	123	6/17/05	10/17/05	
USFS AQS	Sheill_Gulch_112_H2O_Temp	Sheill_Gulch_112_H2O_Temp	40.456216	-123.054713	8234700	Shiell Gulch	UHF	2006	18.47	16.19	18.71	13.47	147	6/15/06	11/8/06	
USFS AQS	Sheill_Gulch_112_H2O_Temp	Sheill_Gulch_112_H2O_Temp	40.456216	-123.054713	8234700	Shiell Gulch	UHF	2007	23.49	19.48	24.87	17.72	159	5/31/07	11/5/07	
USFS AQS	WilsonCreek_H2O_Temp	WilsonCreek_H2O_Temp	40.418652	-123.040570	8234828	Wilson Cr	UHF	2005	15.27	14.18	15.52	13.60	148	5/18/05	10/12/05	
USFS AQS	WilsonCreek_H2O_Temp	WilsonCreek_H2O_Temp	40.418652	-123.040570	8234828	Wilson Cr	UHF	2006	17.03	16.03	17.30	13.29	160	6/2/06	11/8/06	
USFS AQS	WilsonCreek_H2O_Temp	WilsonCreek_H2O_Temp	40.418652	-123.040570	8234828	Wilson Cr	UHF	2007	17.06	15.98	17.58	14.24	154	5/31/07	10/31/07	
USFS AQS	Orchard_092_H2O_Temp	Orchard_092_H2O_Temp	40.531011	-123.085690	8232792		UHF	2001	12.27	11.54	12.55	11.36	126	6/21/01	10/24/01	
USFS AQS	Twenty_Two_134_H2O_Temp	Twenty_Two_134_H2O_Temp	40.349463	-123.089230	8235006		UHF	2001	21.49	16.85	22.86	14.71	119	6/27/01	10/23/01	
USFS AQS	Twenty_Two_134_H2O_Temp	Twenty_Two_134_H2O_Temp	40.349463	-123.089230	8235006		UHF	2002	15.78	14.88	16.38	12.33	127	6/13/02	10/17/02	
USFS AQS	WF_Hayfork_133_H2O_Temp	WF_Hayfork_133_H2O_Temp	40.324445	-123.113724	8235048		UHF	2002	15.02	14.13	16.00	12.15	127	6/13/02	10/17/02	
TPC	TCB1	Cable Creek	40.319450	-123.271552	8235068	Cable Cr	USF	1997	13.64	12.94						
TPC	TCH1	Charlton Creek	40.326078	-123.283004	8235076	Charlton Cr	USF	1997	15.24	14.74						
USFS AQS	Dark_Canyon_151_H2O_Temp	Dark_Canyon_151_H2O_Temp	40.240692	-123.083911	8236316	Dark Canyon Cr	USF	2001	17.30	15.06	17.52	14.35	119	6/27/01	10/23/01	
USFS AQS	Dark_Canyon_151_H2O_Temp	Dark_Canyon_151_H2O_Temp	40.240692	-123.083911	8236316	Dark Canyon Cr	USF	2002	16.22	15.68	16.76	13.79	98	7/12/02	10/17/02	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	Pettijohn_154_H2O_Temp	Pettijohn_154_H2O_Temp	40.202929	-122.982901	8236562	EF SF Trinity R	USF	2001	10.66	9.60	10.99	9.01	119	6/27/01	10/23/01	
USFS AQS	Split_153_H2O_Temp	Split_153_H2O_Temp	40.203973	-122.985233	8236562	EF SF Trinity R	USF	2001	12.33	11.39	12.93	10.33	119	6/27/01	10/23/01	
USFS AQS	Pettijohn_154_H2O_Temp	Pettijohn_154_H2O_Temp	40.202929	-122.982901	8236562	EF SF Trinity R	USF	2005	16.30	15.29	16.55	14.54	156	5/13/05	10/15/05	
USFS AQS	Pettijohn_154_H2O_Temp	Pettijohn_154_H2O_Temp	40.202929	-122.982901	8236562	EF SF Trinity R	USF	2006				13.88	90	7/27/06	10/24/06	
USFS AQS	Pettijohn_154_H2O_Temp	Pettijohn_154_H2O_Temp	40.202929	-122.982901	8236562	EF SF Trinity R	USF	2007	17.46	16.21	17.98	14.58	141	6/6/07	10/24/07	
HSU FSP	6008	E FK S FK TRINITY RIVER/SITE_36	40.237169	-123.078807	8235160	EF SF Trinity R	USF	1990	19.83	16.83	20.22	14.83	154	5/1/90	10/1/90	Y
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	1990	19.83	16.83	20.22	14.94	158	4/28/90	10/2/90	
HSU FSP	6008	E FK S FK TRINITY RIVER/SITE_36	40.237169	-123.078807	8235160	EF SF Trinity R	USF	1991	21.02	16.92	21.50	15.43	171	5/1/91	10/22/91	Y
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	1991	21.02	16.92	21.50	15.49	172	5/1/91	10/23/91	
HSU FSP	6008	E FK S FK TRINITY RIVER/SITE_36	40.237169	-123.078807	8235160	EF SF Trinity R	USF	1994	20.06	17.12	20.61	14.71	98	7/13/94	10/18/94	Y
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	1994	20.06	17.12	20.61	14.71	98	7/13/94	10/18/94	
HSU FSP	6008	E FK S FK TRINITY RIVER/SITE_36	40.237169	-123.078807	8235160	EF SF Trinity R	USF	1997	18.69	16.05	19.21	14.99	94	6/10/97	9/11/97	Y
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	1997	18.70	16.05	19.22	14.98	94	6/10/97	9/11/97	
HSU FSP	6008	E FK S FK TRINITY RIVER/SITE_36	40.237169	-123.078807	8235160	EF SF Trinity R	USF	1998	16.82	14.90	17.27	13.71	115	6/26/98	10/18/98	Y
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	1998	16.82	14.91	17.28	13.71	115	6/26/98	10/18/98	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	1999	16.76	14.29	17.51	13.13	160	6/10/99	11/16/99	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2000	18.58	15.78	19.12	13.77	106	6/28/00	10/11/00	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2001	19.90	16.59	20.75	15.51	132	6/20/01	10/29/01	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2002	19.04	16.57	19.46	14.36	159	5/9/02	10/14/02	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2003	18.48	16.41	18.67	13.95	110	6/12/03	9/29/03	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2004	17.97	15.86	18.34	14.14	139	5/21/04	10/6/04	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2005	17.18	15.13	17.54	13.90	126	6/1/05	10/4/05	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2006				16.16	102	7/29/06	11/7/06	
USFS AQS	EFSFT_H2O_temp	EFSFT_H2O_temp	40.238828	-123.082896	8235160	EF SF Trinity R	USF	2007	18.71	17.04	19.31	14.94	165	5/17/07	10/28/07	
WRTC	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	8235160	EF SF Trinity R	USF	2010	18.00	16.19	18.53	14.34	91	6/22/10	9/20/10	
USFS AQS	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	8235160	EF SF Trinity R	USF	2011	16.05	14.19	16.46	13.35	175	7/9/11	12/31/11	
USFS AQS	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	8235160	EF SF Trinity R	USF	2012	17.35	15.17	17.68	14.45	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	8235160	EF SF Trinity R	USF	2013	18.83	16.89	19.29	14.57	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	8235160	EF SF Trinity R	USF	2014	19.39	17.50	19.98	15.60	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_efsf2	H2O_Temp_efsf2	40.238321	-123.081681	8235160	EF SF Trinity R	USF	2015	19.51	17.39	19.84	14.98	318	1/1/15	11/15/15	
TPC	TFR1	Farley Creek	40.349468	-123.305147	8235000	Farley Cr	USF	1997	17.09	15.90						
HSU FSP	6060	PROSPECT CREEK/SITE_83	40.279866	-123.113182	8235108	Prospect Cr	USF	1996	20.25	15.24	21.78	13.56	122	6/1/96	9/30/96	
USFS AQS	ProspectCr_H20_Temp	ProspectCr_H20_Temp	40.248564	-123.114246	8236312	Prospect Cr	USF	1996	17.35	15.24	17.78		84	5/18/96	8/9/96	
USFS AQS	H2O_Temp_prospect1	H2O_Temp_prospect1	40.252841	-123.112059	8236312	Prospect Cr	USF	2011	16.98	16.10	17.51	14.91	175	7/9/11	12/31/11	
USFS AQS	H2O_Temp_prospect1	H2O_Temp_prospect1	40.252841	-123.112059	8236312	Prospect Cr	USF	2012	16.85	15.84	17.27	14.18	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_prospect1	H2O_Temp_prospect1	40.252841	-123.112059	8236312	Prospect Cr	USF	2013	18.65	17.66	19.48	13.87	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_prospect1	H2O_Temp_prospect1	40.252841	-123.112059	8236312	Prospect Cr	USF	2014	15.87	14.72	16.39	13.76	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_prospect1	H2O_Temp_prospect1	40.252841	-123.112059	8236312	Prospect Cr	USF	2015					167	1/1/15	6/16/15	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	1989	16.07	14.71	16.28	13.53	113	5/31/89	9/20/89	
HSU FSP	6028	POWELL CREEK/SITE_31	40.169497	-123.025748	8235250	SF Trinity R	USF	1990	17.15	16.05	17.39	13.93	154	5/1/90	10/1/90	Y
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	1990	17.15	16.05	17.39	14.05	159	4/27/90	10/2/90	
HSU FSP	6028	POWELL CREEK/SITE_31	40.169497	-123.025748	8235250	SF Trinity R	USF	1991	18.13	15.61	18.50	14.17	124	5/30/91	9/30/91	Y
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	1991	18.13	15.61	18.50	14.17	124	5/30/91	9/30/91	
HSU FSP	6028	POWELL CREEK/SITE_31	40.169497	-123.025748	8235250	SF Trinity R	USF	1992	17.27	16.38	17.39	14.89	145	5/13/92	10/4/92	Y
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	1992	17.27	16.38	17.40	14.89	145	5/13/92	10/4/92	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
HSU FSP	6028	POWELL CREEK/SITE_31	40.169497	-123.025748	8235250	SF Trinity R	USF	1994	17.56	16.36	17.89	13.64	98	7/13/94	10/18/94	Y
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	1994	17.56	16.36	17.89	13.64	98	7/13/94	10/18/94	
USFS AQS	SFT_BelowWilderness_H2O_Temp	SFT_BelowWilderness_H2O_Temp	40.169730	-123.026249	8235250	SF Trinity R	USF	1997	18.65	16.27	19.22	15.09	94	6/10/97	9/11/97	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2000	17.35	16.17	17.81	14.16	106	6/28/00	10/11/00	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2001	16.85	15.67	17.64	14.63	158	6/1/01	11/5/01	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2002	18.04	16.72	18.61	14.42	159	5/11/02	10/16/02	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2003	18.36	17.20	19.10	14.37	97	6/27/03	10/1/03	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2004	17.52	16.28	17.73	14.37	147	5/12/04	10/5/04	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2005	17.02	15.54	17.41	14.35	112	6/22/05	10/11/05	
USFS AQS	Powell_H2O_temp	Powell_H2O_temp	40.169696	-123.026179	8235250	SF Trinity R	USF	2007	17.25	15.98	17.89	14.18	136	6/15/07	10/28/07	
USFS AQS	South Fork Trinity blw Powell Creek H2O temp	South Fork Trinity blw Powell Creek H2O temp	40.170013	-123.027469	8235234	SF Trinity R	USF	2001					21	6/1/01	6/21/01	
USFS AQS	South Fork Trinity blw Powell Creek H2O temp	South Fork Trinity blw Powell Creek H2O temp	40.170013	-123.027469	8235234	SF Trinity R	USF	2004	18.70	16.25	19.23	14.36	146	5/12/04	10/4/04	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	1999	19.43	17.06	20.35	15.24	158	6/12/99	11/16/99	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	2000	20.56	18.28	21.01	15.79	106	6/28/00	10/11/00	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	2001	21.36	18.36	22.49	16.72	158	5/31/01	11/4/01	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	2002	22.99	19.49	23.84	16.17	102	7/7/02	10/16/02	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	2003	21.17	19.37	21.83	15.92	97	6/27/03	10/1/03	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	2004	20.51	18.45	21.01	16.07	99	6/29/04	10/5/04	
USFS AQS	SFT_Shell_154_H2O_temp	SFT_Shell_154_H2O_temp	40.198931	-123.096603	8235200	SF Trinity R	USF	2005	19.31	17.70	19.87	15.87	139	6/1/05	10/17/05	
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1990	21.33	19.64	21.78	16.76	154	5/1/90	10/1/90	Y
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1992	21.35	18.93	21.72	17.18	146	5/13/92	10/5/92	Y
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1993	21.52	19.98	22.00	18.04	152	5/14/93	10/12/93	Y
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1994	22.08	19.80	22.72	16.62	98	7/13/94	10/18/94	Y
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1995	19.29	17.66	19.72	14.21	105	6/6/95	9/18/95	Y
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1997	21.47	19.23	22.03	17.78	94	6/10/97	9/11/97	Y
HSU FSP	6006	S FK TRINITY RIVER/SITE_33	40.243967	-123.124673	8235166	SF Trinity R	USF	1998	20.87	19.09	21.20	17.00	115	6/26/98	10/18/98	Y
WRTC	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	8235166	SF Trinity R	USF	2010	19.91	18.32	20.46	16.08	91	6/22/10	9/20/10	
USFS AQS	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	8235166	SF Trinity R	USF	2011	19.02	17.66	19.84	16.19	175	7/9/11	12/31/11	
USFS AQS	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	8235166	SF Trinity R	USF	2012	19.42	17.78	20.06	16.79	365	1/1/12	12/31/12	
USFS AQS	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	8235166	SF Trinity R	USF	2013	21.41	19.61	22.20	16.85	364	1/1/13	12/31/13	
USFS AQS	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	8235166	SF Trinity R	USF	2014	21.69	19.95	22.47	17.33	365	1/1/14	12/31/14	
USFS AQS	H2O_Temp_sftr2	H2O_Temp_sftr2	40.244677	-123.126096	8235166	SF Trinity R	USF	2015	22.45	20.37	23.04	16.68	318	1/1/15	11/15/15	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1990	21.33	19.64	21.78	16.89	159	4/27/90	10/2/90	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1992	21.35	18.93	21.72	17.18	146	5/13/92	10/5/92	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1993	19.31	17.51	19.89	15.61	176	5/28/93	11/19/93	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1994	22.08	19.80	22.72	16.62	98	7/13/94	10/18/94	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1995	19.29	17.66	19.72	15.76	105	6/28/95	10/10/95	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1997	21.49	19.23	22.06	17.78	94	6/10/97	9/11/97	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	1998	20.88	19.10	21.21	17.01	115	6/26/98	10/18/98	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2000	21.04	19.06	21.37	16.72	106	6/28/00	10/11/00	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2001	21.49	19.04	22.53	17.21	132	6/20/01	10/29/01	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2002	21.46	19.45	22.20	16.57	159	5/9/02	10/14/02	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2003	21.68	20.12	22.18	16.80	110	6/12/03	9/29/03	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2004	21.49	19.30	21.85	17.07	139	5/21/04	10/6/04	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2005	20.07	18.66	20.53	16.84	139	6/1/05	10/17/05	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2006	19.67	17.94	20.00	14.45	112	7/20/06	11/8/06	
USFS AQS	SFT_Bridge 33_H2O_temp	SFT_Bridge 33_H2O_temp	40.246102	-123.128266	8236310	SF Trinity R	USF	2007	21.59	19.66	22.35	16.90	165	5/17/07	10/28/07	
CDFW	SF Trinity R above Bramlet	SF Trinity R above Bramlet	40.255825	-123.143851	8236310	SF Trinity R	USF	2015	21.71	20.16	22.20	16.81	127	6/25/15	10/29/15	
HSU FSP	6010	S FK TRINITY RIVER/SITE_38	40.303396	-123.236370	8235092	SF Trinity R	USF	1993	18.97	17.52	19.61	15.90	110	5/27/93	9/13/93	
HSU FSP	6010	S FK TRINITY RIVER/SITE_38	40.303396	-123.236370	8235092	SF Trinity R	USF	1994	21.83	19.61	22.61	17.01	102	7/9/94	10/18/94	
HSU FSP	6010	S FK TRINITY RIVER/SITE_38	40.303396	-123.236370	8235092	SF Trinity R	USF	1996	19.29	17.75	19.61	15.73	98	6/25/96	9/30/96	
HSU FSP	6010	S FK TRINITY RIVER/SITE_38	40.303396	-123.236370	8235092	SF Trinity R	USF	1997	22.57	19.74	23.19	18.43	115	6/6/97	9/28/97	
HSU FSP	6010	S FK TRINITY RIVER/SITE_38	40.303396	-123.236370	8235092	SF Trinity R	USF	1998	20.34	18.93	20.69	17.21	137	5/22/98	10/5/98	Y
USFS AQS	H2O_Temp_AREMP_CAUST	H2O_Temp_AREMP_CAUST	40.304239	-123.236852	8235092	SF Trinity R	USF	2005	19.56	18.22	19.83	17.04	110	5/22/05	9/8/05	
WRTC	SF Trinity R at Smoky Cr	SF Trinity R at Smoky Cr	40.302851	-123.236204	8235092	SF Trinity R	USF	2015	22.92	21.21	23.40	17.54	139	6/26/15	11/11/15	
USFS AQS	AREMP CAUST001	AREMP CAUST001	40.304232	-123.236841	8235092	SF Trinity R	USF									
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	8235082	SF Trinity R	USF	1998	20.35	18.94	20.70	17.22	137	5/22/98	10/5/98	
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	8235082	SF Trinity R	USF	2000	21.24	19.58	21.52	17.31	144	6/22/00	11/12/00	
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	8235082	SF Trinity R	USF	2001	21.36	18.36	22.49	16.72	158	5/31/01	11/4/01	
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	8235082	SF Trinity R	USF	2002	21.85	19.87	22.40	17.12	144	5/30/02	10/20/02	
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	8235082	SF Trinity R	USF	2003	21.45	20.00	22.23	17.12	123	6/6/03	10/6/03	
USFS AQS	SFT_ab_Smoky_38_H2O_temp	SFT_ab_Smoky_38_H2O_temp	40.304731	-123.237868	8235082	SF Trinity R	USF	2005	19.31	17.70	19.87	15.87	139	6/1/05	10/17/05	
CDFW	SF Trinity R at Forest Glen footbridge	SF Trinity R at Forest Glen footbridge	40.361415	-123.306334	8234970	SF Trinity R	USF	2015	25.57	23.16	26.23	19.12	105	6/12/15	9/24/15	
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2000	23.24	19.06	24.36	16.40	106	6/28/00	10/11/00	
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2001	29.20	19.28	32.40	17.91	158	5/31/01	11/4/01	
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2002	21.47	18.75	22.33	15.79	145	5/25/02	10/16/02	
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2003	26.60	21.54	28.07	17.92	97	6/27/03	10/1/03	
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2004	22.40	19.53	23.18	17.31	99	6/29/04	10/5/04	
USFS AQS	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2005	26.70	19.65	27.00	18.46	134	6/1/05	10/12/05	
WRTC	ShellMountain_H2O_temp	ShellMountain_H2O_temp	40.198953	-123.096885	8235208	Shell Mountain Cr	USF	2010	24.41	18.91	25.11	16.90	91	6/22/10	9/20/10	
USFS AQS	Silver_H2O_temp	Silver_H2O_temp	40.312777	-123.247198	8235064	Silver Cr	USF	2001	17.35	16.38	17.77	15.38	160	5/24/01	10/30/01	
USFS AQS	Silver_H2O_temp	Silver_H2O_temp	40.312777	-123.247198	8235064	Silver Cr	USF	2002	19.07	17.61	19.44	15.34	144	5/30/02	10/20/02	
USFS AQS	Silver_H2O_temp	Silver_H2O_temp	40.312777	-123.247198	8235064	Silver Cr	USF	2003	19.74	18.29	20.41	15.81	123	6/6/03	10/6/03	
USFS AQS	Silver_H2O_temp	Silver_H2O_temp	40.312777	-123.247198	8235064	Silver Cr	USF	2005	18.32	16.68	18.88	15.81	113	6/21/05	10/11/05	
USFS AQS	Silver_H2O_temp	Silver_H2O_temp	40.312777	-123.247198	8235064	Silver Cr	USF	2007	19.18	17.86	19.69	16.14	151	6/7/07	11/4/07	
HSU FSP	6009	SMOKY CREEK/SITE_37	40.305320	-123.235854	8235080	Smoky Cr	USF	1992	20.79	18.26	21.39	13.15	142	5/13/92	10/1/92	Y
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	1992	20.79	18.26	21.39	16.61	142	6/13/92	11/1/92	
HSU FSP	6009	SMOKY CREEK/SITE_37	40.305320	-123.235854	8235080	Smoky Cr	USF	1993	17.84	16.15	18.28	14.71	110	5/27/93	9/13/93	Y
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	1993	17.84	16.15	18.28	14.71	110	5/27/93	9/13/93	
HSU FSP	6009	SMOKY CREEK/SITE_37	40.305320	-123.235854	8235080	Smoky Cr	USF	1994	20.52	18.49	21.22	15.63	102	7/9/94	10/18/94	Y
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	1994	20.52	18.50	21.22	15.62	102	7/9/94	10/18/94	
HSU FSP	6009	SMOKY CREEK/SITE_37	40.305320	-123.235854	8235080	Smoky Cr	USF	1997	20.67	18.13	21.33	16.97	115	6/6/97	9/28/97	Y
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	1997	20.66	18.13	21.33	16.96	115	6/6/97	9/28/97	
HSU FSP	6009	SMOKY CREEK/SITE_37	40.305320	-123.235854	8235080	Smoky Cr	USF	1998	18.68	17.60	19.21	16.12	137	5/22/98	10/5/98	Y
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	1998	18.68	17.60	19.22	16.13	137	5/22/98	10/5/98	
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	1999	18.13	16.44	19.06	15.40	144	6/10/99	10/31/99	
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	2001	20.61	17.85	21.17	15.62	160	5/24/01	10/30/01	
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	2002	20.67	18.36	21.23	15.80	144	5/30/02	10/20/02	

Source Entity	Site Name	Site Description	Original Latitude NAD83	Original Longitude NAD83	NSI Reach COMID	NSI Reach GNIS Name	Watershed	Year	MWMT (°C)	MWAT (°C)	MDMT (°C)	Aug mean (°C)	Days	Date Start	Date End	Overlap
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	2003	19.02	18.09	19.60	15.74	123	6/6/03	10/6/03	
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	2005	17.84	16.71	17.91	15.59	113	6/21/05	10/11/05	
USFS AQS	Smoky_H2O_temp	Smoky_H2O_temp	40.304939	-123.236535	8235080	Smoky Cr	USF	2007	22.03	20.06	22.82	17.78	151	6/7/07	11/4/07	
WRTC	Smoky Cr	Smoky Cr	40.304968	-123.236506	8235080	Smoky Cr	USF	2015	21.04	19.22	21.49	16.02	139	6/26/15	11/11/15	
USFS AQS	Texas_Chow_144_H2O_Temp	Texas_Chow_144_H2O_Temp	40.263232	-123.088626	8235136	Texas Chow Cr	USF	2001	16.00	14.70	19.04		97	6/27/01	10/23/01	
USFS AQS	Texas_Chow_144_H2O_Temp	Texas_Chow_144_H2O_Temp	40.263232	-123.088626	8235136	Texas Chow Cr	USF	2002	14.25	14.05	14.47	12.57	127	6/13/02	10/17/02	
USFS AQS	East_Fork_141_H2O_Temp	East_Fork_141_H2O_Temp	40.244703	-123.003071	8235148		USF	2001	15.18	13.63	15.62	12.97	119	6/27/01	10/23/01	
USFS AQS	BlossomCabin_H2O_temp	BlossomCabin_H2O_temp	40.186660	-123.051963	8236322		USF	1989					40	8/11/89	9/19/89	
HSU FSP	6029	BLOSSOM CABIN CREEK/SITE_32	40.186821	-123.049914	8236322		USF	1990	17.51	15.82	18.00	13.69	154	5/1/90	10/1/90	Y
USFS AQS	BlossomCabin_H2O_temp	BlossomCabin_H2O_temp	40.186660	-123.051963	8236322		USF	1990	17.51	15.82	18.00	13.79	158	4/28/90	10/2/90	
HSU FSP	6029	BLOSSOM CABIN CREEK/SITE_32	40.186821	-123.049914	8236322		USF	1991	16.84	14.97	17.22	13.68	177	4/30/91	10/23/91	Y
USFS AQS	BlossomCabin_H2O_temp	BlossomCabin_H2O_temp	40.186660	-123.051963	8236322		USF	1991	16.84	14.97	17.22	13.68	177	4/30/91	10/23/91	
HSU FSP	6029	BLOSSOM CABIN CREEK/SITE_32	40.186821	-123.049914	8236322		USF	1992	16.67	15.52	16.89	13.96	144	5/14/92	10/4/92	Y
USFS AQS	BlossomCabin_H2O_temp	BlossomCabin_H2O_temp	40.186660	-123.051963	8236322		USF	1992	16.67	15.52	16.89	13.96	144	5/14/92	10/4/92	
HSU FSP	6029	BLOSSOM CABIN CREEK/SITE_32	40.186821	-123.049914	8236322		USF	1994	17.44	15.72	17.78	13.31	100	7/12/94	10/19/94	Y
USFS AQS	BlossomCabin_H2O_temp	BlossomCabin_H2O_temp	40.186660	-123.051963	8236322		USF	1994	17.44	15.72	17.78	13.31	100	7/12/94	10/19/94	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	8235232		USF	1990	19.04	16.42	19.61	14.19	154	5/1/90	10/1/90	Y
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1990	19.04	16.42	19.61	14.29	159	4/27/90	10/2/90	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	8235232		USF	1991	16.12	15.00	16.50	13.78	124	5/30/91	9/30/91	Y
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1991	16.12	15.00	16.50	13.78	124	5/30/91	9/30/91	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	8235232		USF	1992	18.67	16.53	19.39	14.90	145	5/13/92	10/4/92	Y
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1992	18.67	16.53	19.39	14.90	111	5/13/92	8/31/92	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	8235232		USF	1993	15.59	14.43	16.00	12.94	152	5/27/93	10/25/93	Y
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1993	15.59	14.43	16.00	12.94	151	5/28/93	10/25/93	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	8235232		USF	1994	19.14	16.47	19.89	13.94	98	7/13/94	10/18/94	Y
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1994	19.14	16.47	19.89	13.94	98	7/13/94	10/18/94	
HSU FSP	6005	S FK TRINITY RIVER/SITE_30	40.171926	-123.025673	8235232		USF	1997	19.15	16.25	19.66	15.10	94	6/10/97	9/11/97	Y
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1997	19.16	16.26	19.67	15.10	94	6/10/97	9/11/97	
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	1999	17.30	14.46	18.00	13.31	158	6/12/99	11/16/99	
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	2000	18.64	15.95	19.28	14.00	106	6/28/00	10/11/00	
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	2002	19.35	16.66	20.04	14.52	159	5/11/02	10/16/02	
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	2003	18.70	16.66	19.88	14.11	97	6/27/03	10/1/03	
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	2005	17.99	15.80	18.42	14.37	113	6/22/05	10/12/05	
USFS AQS	SFT_above_Powell 30_H2O_temp	SFT_above_Powell 30_H2O_temp	40.170725	-123.026621	8235232		USF	2007	18.95	16.21	19.72	14.52	136	6/15/07	10/28/07	
USFS AQS	Alder_Thicket_152_H2O_Temp	Alder_Thicket_152_H2O_Temp	40.204552	-122.989852	NA		USF	2001	9.76	8.19	10.21	7.77	119	6/27/01	10/23/01	
USFS AQS	Horse_Drink_142_H2O_Temp	Horse_Drink_142_H2O_Temp	40.245016	-123.005946	NA		USF	2001	12.93	12.29	13.32	11.72	119	6/27/01	10/23/01	
USFS AQS	White_Rock_Camp_143_H2O_Temp	White_Rock_Camp_143_H2O_Temp	40.249139	-123.025295	NA		USF	2001	14.69	11.86	15.23	11.28	119	6/27/01	10/23/01	

APPENDIX C: METHODS USED FOR ASSIGNING STREAM TEMPERATURE MONITORING SITES TO THE NSI STREAM NETWORK

As noted in Section 2.3 of this report, each stream temperature monitoring station was assigned to a reach in the National Stream Internet (NSI) Hydrography Network GIS. This appendix describes the following steps that were performed by The Watershed Research and Training Center's GIS specialist Marie Buell:

- The location for each point was plotted on a base map (e.g., topographic map with labeled streams and roads) in ArcGIS and visually examined to make sure its location corresponded to available attributes such as site code and site name. If necessary, it was manually moved to be closer to the correct reach. Many monitoring sites are located near tributary junctions and thus minor inaccuracies in location (if not corrected) could result in a site being assigned to the wrong stream reach. In some cases, site locations were based on 1:24,000 scale streams GIS, but still required adjustment to correspond to the stream's location in the coarser 1:100,000 NSI/NHDplus streams GIS.
- Once the locations were adjusted as necessary, then we used the "snappoints" tool in the Geospatial Modeling Environment (GME)[27] platform to snap each point to the closest stream.
- Then we used a Spatial Join in ArcGIS ArcToolbox[28] to assign the stream reach's attributes to each point (i.e., extract the COMID and other relevant attributes).
- The newly assigned attributes of each point were then reviewed for accuracy, and if necessary corrected and re-snapped.
- The new coordinates for the snapped locations were then added to the attribute table of the temperature monitoring sites using the Calculate Geometry function in ArcGIS.

These steps are based on guidance provided by the NorWeST modelling team (Sherry Wollrab, pers. comm.). COMIDs and snapped coordinates for most of the sites in the USFS NRIS AqS database were already assigned by the NorWeST project in 2015, so we utilized that information where available[29].

[27] http://www.spatialecology.com/gme/

[28] The Spatial Join tool in ArcToolbox allows the user to specify a maximum distance. In contrast, the "Join data from another location based on spatial location" function in the Join Data dialogue box (accessed by right-clicking on the item in the ArcGIS Table of Contents and choosing Joins and Relates) will join points to the closest stream even if it is miles away, resulting in erroneous joins for sites located on streams that do not exist in the NSI/NHDplus stream network GIS.

[29] We acquired a Microsoft Access database of daily stream temperature data and deployment information for the "Northern California Coastal Klamath" unit of NorWeST which contained the database fields required to link NorWeST's COMID and snapped coordinates to an updated version of the USFS AqS database.

APPENDIX D: ANOMALIES IN TIME OF DAY FOR 1995 USFS AQS AND HSU FSP DATA

Stream temperatures are typically lowest around sunrise and highest around sunset. During data review, we noticed that there appears to be an issue with the time of day in the 1995 data from the HSU FSP and USFS AqS. The graphs in this appendix show that hourly water temperatures at some of the 1995 sites do not follow the typically expected pattern. It may be that the AM and PM were switched. Since this does not have a strong effect on season summary statistics, we did not attempt to resolve the issue, but thought it was important to include a note here so that future users of the database will be aware of this issue.

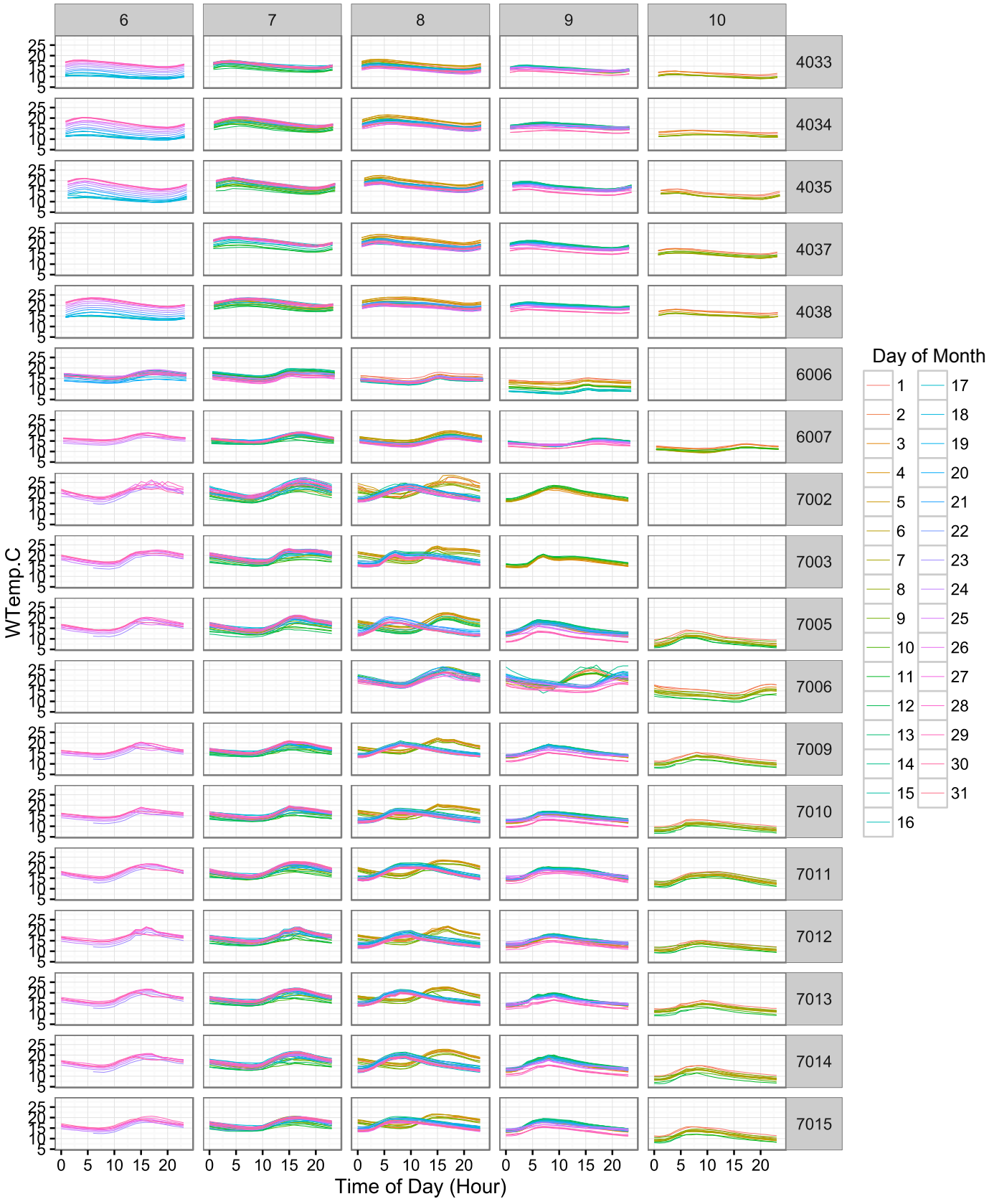

Figure D1. Chart illustrating issues with times in 1995 HSU FSP data. Graph panels are arranged in rows by Site Name and columns by Month (6 = June)

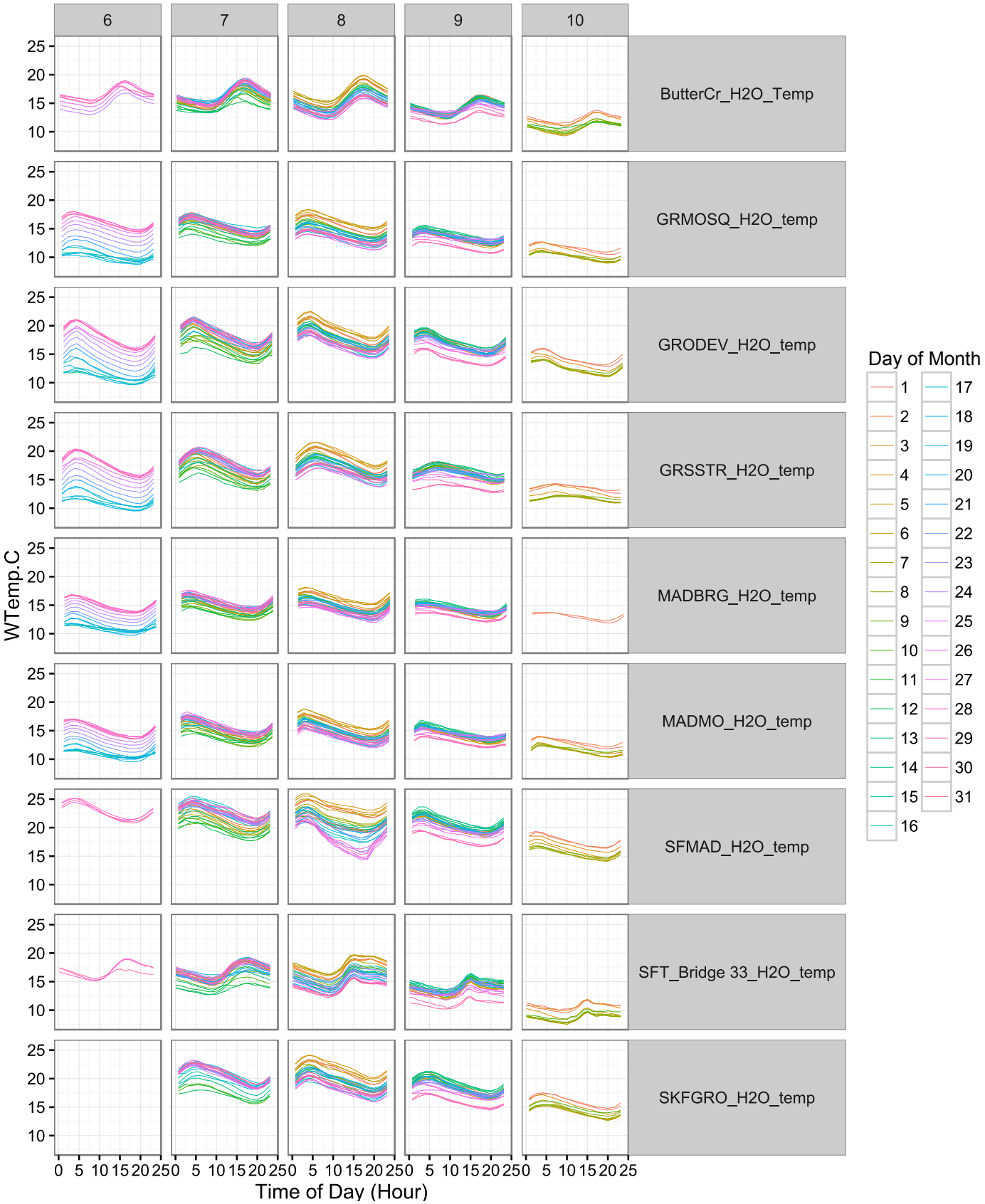

Figure D2. Chart illustrating issues with times in 1995 USFS AqS data. Graph panels are arranged in rows by Site Name and columns by Month (6 = June)

APPENDIX E: SENSITIVITY ANALYSIS OF MWAT AND MWMT RELATIVE ANOMALIES

This appendix shows a sensitivity analysis for the calculation of the relative anomaly for MWAT and MWMT. For additional information, see section 0 of the report.

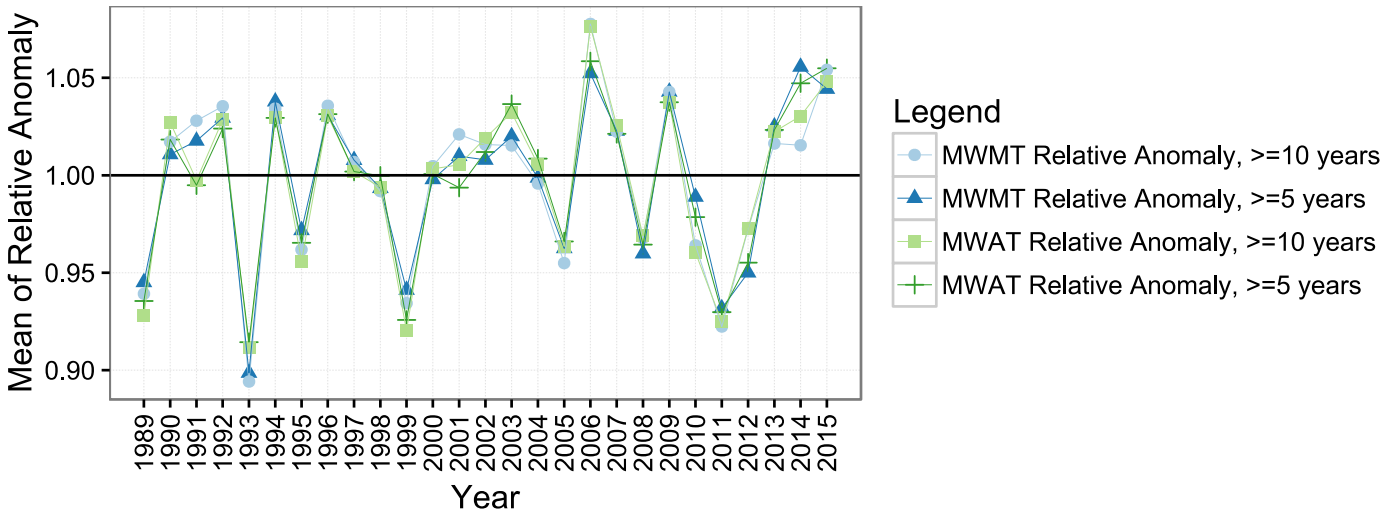

Figure E1. Inter-annual variation in the mean (i.e., averaged across all sites within a year) relative anomaly for MWAT and MWMT. Two scenarios are shown, one using five years as the minimum number of years of data for a site and another using 10 years as the minimum number of years of data for a site.

APPENDIX F: MAP WITH YEARS OF TEMPERATURE DATA FOR EACH REACH

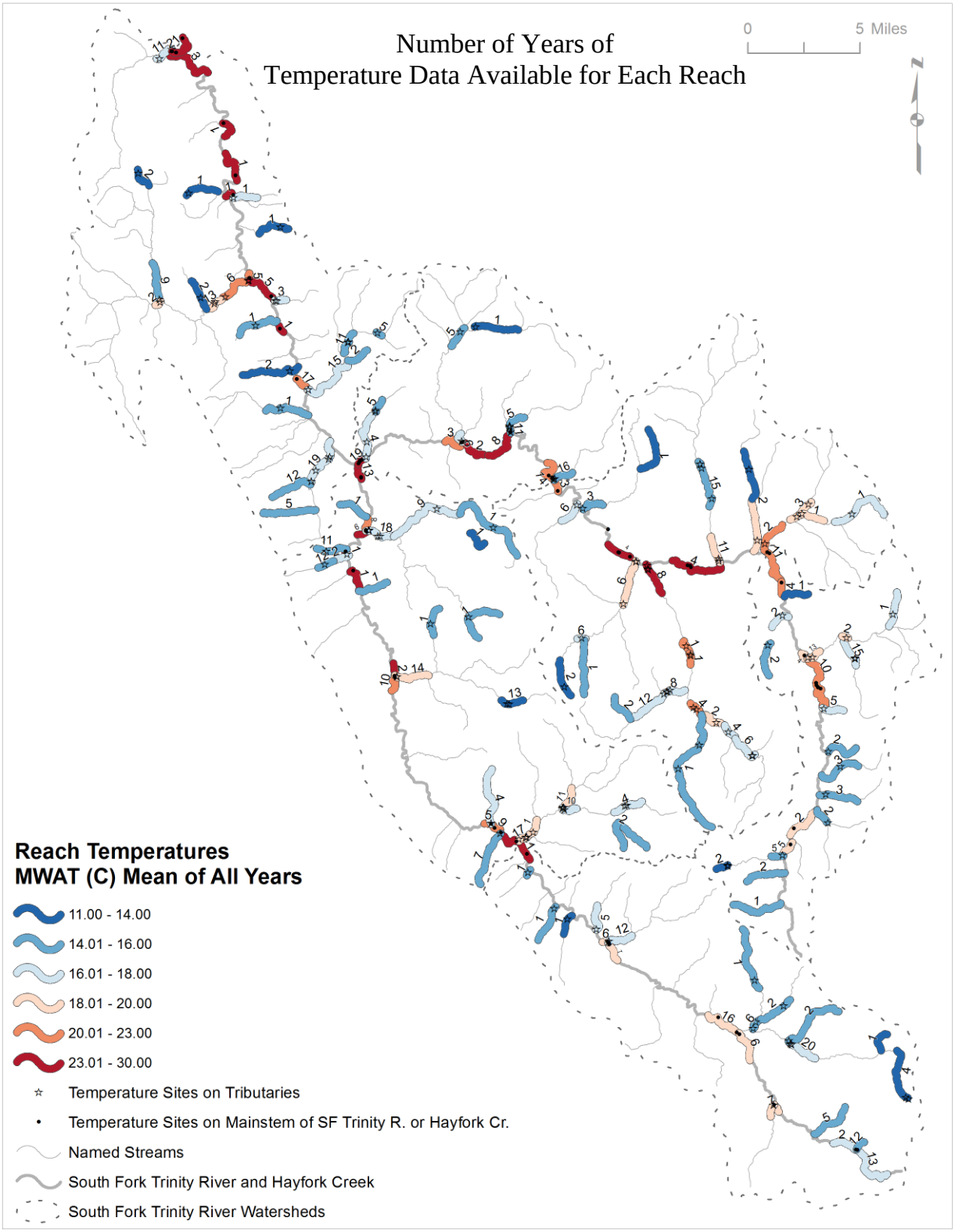

Figure F1. Reach-level summary of measured stream temperatures within the South Fork Trinity River watershed, labeled by the number of years of temperature data available. Mean reach MWAT values were calculated as the mean of all MWATs across all monitoring sites and years (1989-2015) within a reach.