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## 2.0 DESCRIPTION OF THE MIDDLE FORK AMERICAN RIVER WATERSHED

This section describes the Middle Fork American River Watershed (Watershed), which contains Placer County Water Agency's (PCWA's) Middle Fork American River Project (MFP or Project). The Federal Energy Regulatory Commission's (FERC's) content requirements for this section are specified in Title 18 of the Code of Federal Regulations (CFR) Chapter I § 5.6(d)(3)(xiii).

For context, an overview of the American River Basin is presented first, followed by information regarding the Watershed. This information includes the overall Watershed area and sub-Watershed areas; rivers and streams affected by the MFP; major land and water uses and other dams; and, diversions in the Watershed. The information presented in this section is entirely based on existing information.

### 2.1 INFORMATION SOURCES

This section was prepared utilizing the following information sources:

- The existing and potential beneficial uses that apply to surface waters within the Watershed were obtained from Table II of *The Sacramento River Basin and San Joaquin River Basin Water Quality Control Plan (California Regional Water Control Board 2004)*.
- The U.S. Bureau of Reclamation data from the Auburn State Recreation Area and the California Data Exchange Center provided information on the climate associated with the Watershed.
- The Sacramento Municipal Utility District (SMUD) informational webpage provided maps and information on the Upper American River Project (FERC Project No. 2101), a hydropower project partially located within the Watershed.
- The El Dorado County Water Agency's Water Resources Development and Management Plan, which is available on the internet, provided maps and information on the Georgetown Divide Public Utility District's (GDPUD) Stumpy Meadow Project.

These references are cited throughout the text and complete reference information is provided at the end of this section.

### 2.2 OVERVIEW OF THE AMERICAN RIVER BASIN

The American River Basin is comprised of three primary forks of the American River referred to as the North Fork, the Middle Fork, and the South Fork. In addition, it includes an area surrounding Folsom Reservoir, referred to as the Foothill Drain watershed. Together, the watersheds associated with these three forks and the Foothill Drain encompass a 2,051 square mile area. Of this, the North Fork drains a 349 square foot area. The North Fork originates near the north end of Granite Chief Wilderness and terminates at Folsom Reservoir, near the city of Auburn. The South Fork drains an 801 square mile area. The South Fork originates along the crest of the Sierra Nevada in the Desolation and Mokelumne Wilderness areas and terminates at Folsom Reservoir

about 12 miles west of the city of Placerville. The Middle Fork drains a 616 square mile area and joins the North Fork American River approximately 21 miles upstream of Folsom Reservoir Dam. The Foothill Drain watershed encompasses a 285 square mile area. The American River Basin is shown on Map 2-1.

Downstream of Folsom Reservoir, the lower American River is about 23 miles long and bisects the metropolitan Sacramento area, flowing into the Sacramento River near downtown Sacramento.

### **2.3 DESCRIPTION OF THE MIDDLE FORK AMERICAN RIVER WATERSHED**

The Watershed is situated in the foothills and mountainous uplands of the western slope of the central Sierra Nevada mountain range, primarily within the Tahoe National Forest (TNF) and Eldorado National Forest (ENF). The Watershed is characterized by hot, dry summers and mild, wet winters, with most of the precipitation falling between October and March. Precipitation falls as rain in the lower elevations and snow at elevations greater than about 5,000 feet above mean sea level (msl). Elevations higher than about 6,000 feet msl are typically extensively covered by snow until May. Years tend to be either wet or dry with high inter-annual variability, with few years receiving the 'average' amount of precipitation. The annual precipitation in the Watershed ranges between 40 and 70 inches, with an average of 50 inches. The Watershed and its sub-watersheds are depicted on Map 2-2.

The principle MFP facilities located in the Watershed are shown on Map 2-3. A detailed description of the MFP facilities and operations are presented in the Project Description (see Supporting Document B). The operation of the MFP affects flows and potentially resources on the following rivers and streams:

- The Middle Fork American River, from French Meadows Reservoir to its confluence with the North Fork American River;
- Duncan Creek, from the Duncan Creek Diversion to its confluence with the Middle Fork American River;
- The Rubicon River, from Hell Hole Reservoir to Ralston Afterbay;
- North Fork Long Canyon Creek from the North Fork Long Canyon Diversion to its confluence with the main stem of Long Canyon Creek;
- South Fork Long Canyon Creek from the South Fork Long Canyon Diversion to the confluence of the main stem of Long Canyon Creek; and
- Long Canyon Creek from the North Fork/South Fork Confluence to its confluence with the Rubicon River.

Table 2-1 provides a summary of the Watershed and sub-watershed areas, stream length, elevations, and stream gradient for waters affected by operations of the MFP.

## 2.4 MAJOR LAND USES IN THE WATERSHED

The Watershed is heavily forested, rural in nature and sparsely populated. There are no residential or commercial developments in the immediate vicinity of the MFP. Several paved roads provide the primary access to the MFP vicinity. These include: Mosquito Ridge Road, Ralston Ridge Road, Blacksmith Flat Road, and Soda Springs Riverton Road. Access to more remote locations in the Watershed is possible using ancillary roads and trails associated with either the Forest Service Transportation System or the Auburn State Recreation Area (ASRA), located downstream of Ralston Afterbay.

The Project facilities and the land within the FERC Project boundary are located primarily within the ENF and TNF. Private parcels are present throughout the Watershed and within the FERC Project boundary at various locations. Land use within the FERC Project boundary is focused on hydropower generation and recreation. Land use outside of the FERC Project boundary is managed mainly for recreation, timber harvest, grazing, natural resource protection, and to a lesser extent mining. Map 2-4 shows the MFP facilities and FERC Project boundary with respect to the land ownership and various land jurisdictions in the Watershed.

## 2.5 MAJOR WATER USES IN THE WATERSHED

Existing and potential beneficial uses that apply to surface waters within the Watershed are identified in *The Sacramento River Basin and San Joaquin River Basin Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board - Control Valley Region (Fourth Edition revised September 2004)*. Beneficial uses identified in the Basin Plan that pertain to the MFP include: (1) municipal and domestic supply; (2) agricultural supply; (3) hydropower generation; (4) water contact recreation; (5) non-contact water recreation; (6) cold freshwater fish habitat; (7) spawning, reproduction and/or early development habitat for fisheries; and (7) wildlife habitat.

Surface water is stored by the MFP and is released for consumptive use, and non-consumptive uses including hydroelectric power generation, recreation, and stream maintenance. The largest consumptive uses of water derived from the Watershed include municipal and domestic water supply and irrigation for agricultural crops. The largest non-consumptive water use in the Watershed is for hydroelectric power generation by PCWA for the MFP and by the Sacramento Municipal Water District (SMUD) for the Upper American River Project (UARP) (FERC Project No. 2101). Other non-consumptive water uses in the Watershed include recreation use (boating, swimming, and fishing) and instream flow releases for fish and wildlife habitat. Water use in the Watershed is described in further detail in Section 4.0, Water Use.

## 2.6 OTHER DAMS AND DIVERSIONS IN THE WATERSHED

Aside from the MFP, flows in the Watershed are influenced by two other projects, SMUD's UARP (FERC Project No. 2101) and the GDPUD's Stumpy Meadows Project.

Sugar Pine Dam, a small diversion dam operated by the Foresthill Public Utility District (FPUD), is located within the North Fork American River watershed but services the town of Foresthill, which is situated on the Middle Fork American River watershed boundary. The locations of the primary facilities associated with these three projects are shown on Map 2-5.

Within the Watershed, SMUD's UARP influences flow into Hell Hole Reservoir and along the South Fork Rubicon River, a tributary to the Rubicon River entering downstream of Hell Hole Reservoir. GPUD's Stumpy Meadows Project affects flows on Pilot Creek, a tributary to the Rubicon River entering downstream of Hell Hole Reservoir. The FPUD's Sugar Pine Dam affects flows on Shirttail Creek, a tributary to the North Fork American River.

## 2.7 REFERENCES

- California Department of Water Resources (DWR). California Data Exchange Center (CDEC) website <http://cdec.water.ca.gov>.
- California Regional Water Quality Control Board (RWQCB). 2004. The Sacramento River Basin and San Joaquin River Basin Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board - Central Valley Region, Fourth Edition, revised September 2004.
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- United States Geological Survey (USGS). 1998. North Fork American River at North Fork Dam, CA. Available at: <http://ca.water.usgs.gov/archive/floods/flood98/11427000.html>.

**TABLES**

**Table 2-1. Information on Watershed Area, Stream Length and Gradient of Waters Associated with the MFP.**

Stream Name	Total Sub-basin Area (mi <sup>2</sup> )	Sub-divided Areas (mi <sup>2</sup> )	Stream Length (mi)	Elevation (ft)	Average Stream Gradient (%)
<b>Duncan Creek</b>					
Duncan Creek – Headwaters to confluence with Middle Fork American River ( <i>Map ID = Duncan Creek</i> )	23.5	-	14.1	Starting: 7045.0 Ending: 3365.6	5.0
Duncan Creek – Headwaters to Duncan Creek Diversion Dam	-	9.9	5.5	Starting: 7045.0 Ending: 5257.7	6.2
Duncan Creek – Duncan Creek Diversion Dam to confluence with Middle Fork American River	-	13.6	8.6	Starting: 5257.7 Ending: 3365.6	4.2
<b>Middle Fork American River</b>					
Middle Fork American River – Headwaters to North Fork American River Confluence	184.5	-	62.3	Starting: 8268.1 Ending: 542.0	2.3
Middle Fork American River – Headwaters to French Meadows Reservoir Dam ( <i>Map ID = French Meadows</i> )	-	47.0	15.1	Starting: 8268.1 Ending: 5084.2	4.0
Middle Fork American River – French Meadows Dam to Middle Fork Interbay ( <i>Map ID = Upper Middle Fork American River</i> )	-	18.4	11.6	Starting: 5084.2 Ending: 2488.6	4.2
Middle Fork American River – Middle Fork Interbay Dam to Ralston Afterbay ( <i>Map ID = Upper Middle Fork American River</i> )	-	22.8	10.8	Starting: 2488.6 Ending: 1158.1	2.3
Middle Fork American River – Ralston Afterbay Dam to confluence with North Fork American River ( <i>Map ID = Lower Middle Fork American River</i> )	-	96.3	24.7	Starting: 1158.1 Ending: 542.0	0.5

**Table 2-1. Information on Watershed Area, Stream Length and Gradient of Waters Associated with the MFP (continued).**

<b>Stream Name</b>	<b>Total Sub-basin Area (mi<sup>2</sup>)</b>	<b>Sub-divided Areas (mi<sup>2</sup>)</b>	<b>Stream Length (mi)</b>	<b>Elevation (ft)</b>	<b>Average Stream Gradient (%)</b>
<b>Long Canyon Creek</b>					
Long Canyon Creek – Headwaters to confluence with Rubicon River	49.0	-	28.8	Starting: 6749.1 Ending: 1398.5	3.5
Long Canyon Creek – Confluence of North and South Forks of Long Canyon Creek to confluence with Rubicon River ( <i>Map ID = Long Canyon</i> )	-	31.3	11.4	Starting: 4119.8 Ending: 1398.5	4.5
North Fork Long Canyon Creek ( <i>Map ID= North Fork</i> )	-	6.6	6.9	Starting: 6359.0 Ending: 4119.8	6.1
South Fork Long Canyon Creek ( <i>Map ID = South Fork</i> )	-	11.1	10.4	Starting: 6749.1 Ending: 4119.8	4.8
<b>Rubicon River</b>					
Rubicon River – Headwaters to Middle Fork American River	209.5	-	58.1	Starting: 8076.2 Ending: 1180.3	2.2
Rubicon River – Headwaters to Hell Hole Reservoir Dam ( <i>Map ID = Hell Hole</i> )	-	113.4	27.7	Starting: 8076.2 Ending: 4531.4	2.4
Rubicon River – Hell Hole Dam to Middle Fork American River ( <i>Map ID = Rubicon River</i> )	-	96.1	30.5	Starting: 4531.4 Ending: 1180.3	2.1
<b>Other Major Streams in the Watershed</b>					
South Fork Rubicon River – Headwaters to Confluence with Rubicon River ( <i>Map ID = South Fork Rubicon River</i> )	57.0	-	16.2	Starting: 7556.1 Ending: 3552.6	4.7
North Fork of Middle Fork American River – Headwaters to confluence with Middle Fork American River ( <i>Map ID = North Fork of Middle Fork American River</i> )	92.5	-	18.8	Starting: 4373.3 Ending: 1069.9	3.3
North Fork American River– Confluence of Middle Fork American River to Folsom High Water Mark ( <i>Map ID = Lower North Fork American River</i> )	5.5	-	4.0	Starting: 542.0 Ending: 491.1	0.2



**MAPS**