3. BASIN CHARACTERISTICS

The Methow River Water Resource Inventory Area (WRIA) 48 is located in north central Washington State. A tributary of the Columbia River, the Methow is bordered on the west by the Cascade mountains, on the north by Canada, on the east by Buckhorn Mountains and the Okanogan River drainage, and on the south by the Columbia River and the Sawtooth Ridge. The Methow River Basin encompasses the entire Methow River drainage, extending approximately 80 miles from the headwaters near the crest of the Cascade Range to the confluence of the river with the Columbia River at Pateros, Washington (see Figure 3-1). The river drains a 1,805 square mile catchment. Elevation above mean sea level ranges from 9,000 feet in the headwaters of the Basin to 775 feet at the confluence of the Methow and Columbia Rivers at Pateros. The basin is a closed hydraulic system, with all water originating as precipitation, and no water leaving the Basin other than via evaporation and streamflow.

WRIA 48 is in the coldest of the 24 western climate zones and of the same latitude as that of Duluth, Minnesota and Bangor, Maine. Because the Cascade Mountains remove much of the marine influence out of the weather systems that pass west to east across them, arctic air plays a role in the climate. These conditions can result in harsh environments for fish and wildlife (Mullen, 1987).

The upper Methow River Valley is a u-shaped, glaciated intermountain valley within the Cascade mountain range. The valley floor elevation within the upper valley varies from 1,765 feet mean sea level at Winthrop to approximately 2,600 feet above Lost River, a distance of approximately 21 miles. The valley floor from Winthrop to Lost River is generally 0.5 mile to 1.5 miles wide and is formed of numerous irregular terraces, alluvial fans, and floodplain meadows. The valley margins are bounded by bedrock uplands which rise steeply, and at some locations near vertically, from the valley floor to elevations over 5,000 feet. Valley sediments are comprised primarily of glacio-fluvial outwash sands and gravels, with common cobbles and boulders. These upper sediments have been significantly reworked since deposition during the Pleistocene (EMCON Northwest, Inc. 1993).

The Methow River is the principal hydraulic feature in the upper valley, generally bisecting the valley, displaying the characteristics of a braided stream, with interlaced and divergent channels and the development of gravel and boulder bars. Downstream from Winthrop to below Twisp, near Carlton, the river channel is better confined within the fluvial valley fill sediments. From Carlton to its confluence with the Columbia River, the lower Methow River is confined primarily to a channel eroded in bedrock, with discontinuous depositional terraces immediately adjacent to the river (EMCON Northwest, Inc. 1993).

3.1 Sub-basin Delineation

The Methow Basin WRIA has been divided into eight sub-basins to further aid in understanding watershed characteristics. This sub-basin delineation is based on stream management units as identified by the Washington State Department of Ecology

(Ecology) in their Water Resources Management Program for the Methow River Basin (Kauffman and Bucknell, 1976). The stream management units identified by Ecology represent seven primary sub-basins, each of which contains a control station used for defining baseflows. The control stations are located at the lowest elevation in each particular sub-basin, thereby representing the flow at the "outlet" of the sub-basin. The downstream most sub-basin designated by Ecology, the Lower Methow, has been further divided into East and West Lower Methow sub-basins. The resulting eight sub-basins have boundaries that are similar to USGS developed, fifth field Hydrologic Unit Code basins (HUC-5s) and, in some cases, WAU (Watershed Administrative Unit) boundaries developed by the Washington Department of Natural Resources.

Table 3-1 summarizes the area and mean elevation of each sub-basin and Figure 3-1 shows the boundaries for the sub-basins. These sub-basin names are used throughout the report to characterize the watershed. In some cases, East Lower Methow and West Lower Methow are combined as simply Lower Methow. Also, in some cases, Early Winters is included with the Methow Headwaters.

TABLE 3-1

Summary of Sub-Basin Delineation

SUB-BASIN NAME	AREA (acres)	MEAN ELEVATION (feet)
EARLY WINTERS	51,012	> 5,000
METHOW HEADWATERS	181,999	5,000
UPPER METHOW	89,014	3,500
CHEWUCH	331,163	4,953
TWISP	156,611	4,267
MIDDLE METHOW	30,763	2,000
WEST LOWER METHOW	157,007	4,000
EAST LOWER METHOW	158,410	3,185
TOTAL	**1,155,979**	**3563**