

# The Flathead National Forest: The Headwaters of the Flathead Watershed

*Craig N. Kendall, Hydrologist*

*Watershed, Fisheries, and Range Program Manager*

*Flathead National Forest*

Forested mountains play a vital role in supplying clean water to dryer valleys, particularly in the west where the majority of precipitation occurs in the form of snow at higher elevations. Forested land absorbs precipitation, recharges groundwater, filters surface water, slows storm runoff, reduces flooding, and provides habitat for fish and wildlife. Traditionally, water in the west has been viewed as a commodity that supports development, agriculture, hydro-power, and municipal use. These values certainly remain, but other values have emerged during the last several decades such as recreation, fish and wildlife habitat, and scenery.

	Average Annual Yield (million ac-ft)
Flathead River at Columbia Falls	7.05
Swan River at Bigfork	0.83
Stillwater River near Whitefish	0.25
Whitefish River near Kalispell	0.14

Source: U.S. Forest Service, 2009



Flathead Headwaters

The Flathead National Forest, along with Glacier National Park makes up the headwaters of the Flathead Watershed. The majority of precipitation in the headwaters of the Flathead occurs as snow during the winter months. Average annual precipitation in the watershed ranges from 10 inches at the valley bottom to over 100 inches on the high mountain peaks in Glacier National Park. In the early spring, mountain snow begins to melt and small tributary streams begin to rise. The timing of peak runoff is variable, but typically occurs in late May or early June. By early August, flows stabilize and are maintained by groundwater. This pattern is repeated every year, and the role of forests in maintaining this annual pattern is critical.

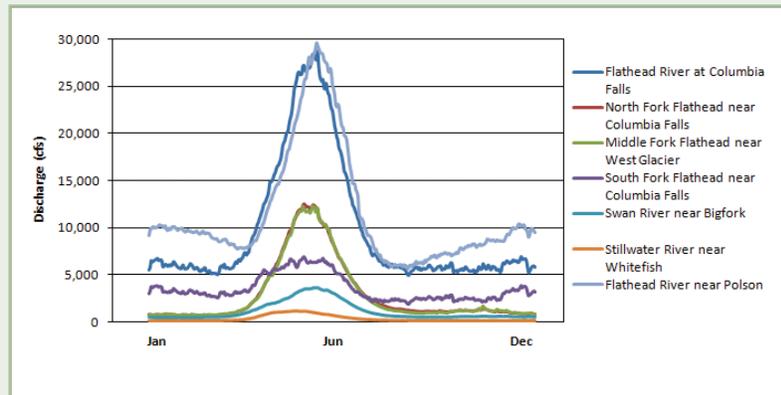
Source: Craig N. Kendall, 2009



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The Flathead National Forest makes up 45% of the Flathead Watershed, and the vast majority of surface water that leaves the basin each year originates from forested lands. On average, the Flathead, Swan, Stillwater, and Whitefish Rivers yield approximately eight million acre feet per year (Table 1).

Lands that are now known as the Flathead National Forest were set aside as forest reserves in 1897 by President Grover Cleveland. That same year, the Organic Act established the purpose of forest reserves: securing favorable conditions of water flows, and to furnish a continuous supply of timber. In subsequent years, numerous other laws were passed that required national forests to be managed not



only for water and timber, but for a variety of other uses including fish and wildlife habitat, recreation, and special uses. Notable examples are the Clean Water Act, Multiple Use Sustained Yield Act, National Forest Management Act, and the Endangered Species Act. Although national forests are managed for a variety of uses, water has remained at the forefront because it was identified as one of the primary purposes of the original forest reserves.

The Forest Service conducts a wide variety of management activities to achieve the desired conditions outlined in our forest plan. Timber harvest, fuel reduction, and road decommissioning are common activities that take place. All management activities require special protection measures or Best Management Practices that are designed to protect and maintain water quantity and quality.

improve water quality and aquatic habitat. BMPs are used on roads and timber sales to protect the soil and prevent the delivery of sediment into streams. They are the primary mechanism the Forest Service uses to comply with the Clean Water Act. Decommissioning of roads and removal of culverts reduces sedimentation and increases habitat connectivity for bull trout and westslope cutthroat trout, as well as amphibians and other aquatic organisms.

Source: Craig N. Kendall, 2009



Bull Trout

Stewardship of the Flathead Watershed begins at the headwaters. The Flathead National Forest has made significant investments to improve the headwater conditions. Implementation of Best Management Practices (BMPs), road decommissioning, removal of fish migration barriers, and protection of wetlands and floodplains are common practices that maintain and

The Forest Service has made considerable progress during the last ten years in upgrading culverts on roads that are on the permanent transportation system. To reduce the risk of culvert failures and associated sedimentation, the Forest Service installs new culverts that have enough capacity to pass a 100 year flood. In addition, all new culverts and stream crossings are designed to allow native fish and other aquatic organisms to migrate through them.