

Jubilee Lake

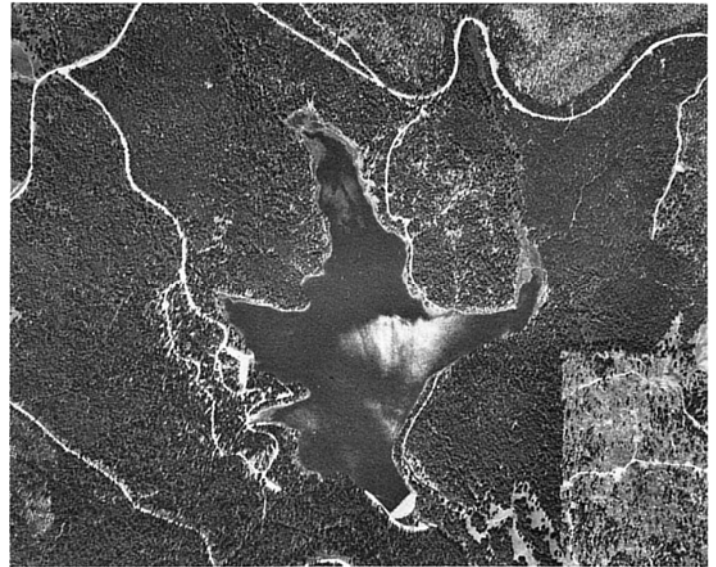
Union County

Grande Ronde Basin

Location	
Area	90 acres (36.4 hect)
Type	reservoir
Use	recreation
Location	19 miles north of Elgin in Umatilla National Forest
Access	gravel Forest Service road from Ore Hwy y 204 near Tollgate
USGS Quad	Jubilee Lake (24K), Wallowa (100K)
Coordinates	45° 49' 38" N, 117° 57' 28" W
USPLSS	tow nship 04N, range 39E, section 17

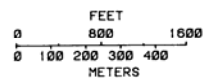
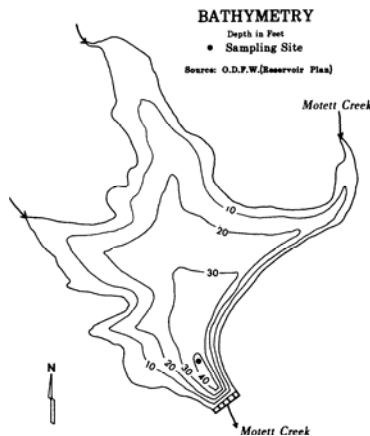
Jubilee Lake (also known as Jubilee Meadows Reservoir) is a fairly new recreation reservoir in the Umatilla National Forest, a part of the state in which lakes are scarce. It is a cooperative effort between the Oregon Department of Fish and Wildlife and the U.S. Forest Service. A rock and earthfill dam was built across Motett Creek in 1968, and the Forest Service built the roads and a very nice campground. A three-mile hiking trail around the lake has been designated a National Recreation Trail. First stocked in 1968 with rainbow trout, the lake and recreation area attracted over 25,000 visitors in the first year of existence, and this level of use has continued. The small contributing drainage basin is an area of steep slopes covered by a thick coniferous forest. In addition to Motett Creek, there are a few small intermittent streams that provide inflow to the lake during the snowmelt season.

The shape of the impoundment is typical of reservoirs; there are four separate shallow arms along the north side of the lake where the water backs up into Motett Creek and its tributaries. The deepest portion of the reservoir is confined to a small area just behind the dam. The water in the lake is low in mineral constituents, with some of the lowest values for alkalinity, conductivity and major ion concentrations among reservoirs in eastern Oregon. Water transparency is good, indicating mesotrophic conditions. The concentrations of chlorophyll and phosphorus are also characteristic of mesotrophic ecological conditions. The lake develops a relatively shallow thermocline (between 15 and 25 feet; 4.5 to 7.6 meters) in the summer, indicating that it is sheltered from strong winds. The bottom water stays very cold (39 degrees Fahrenheit; 4 degrees Celsius), a legacy of the cold winters at this altitude and location. The bottom water has been observed to be anoxic in late summer, a situation that usually occurs only in eutrophic lakes. In Jubilee Lake, the anoxia may result from the small volume of the hypolimnion, which occupies less than 10 percent of the bottom of the reservoir, and from the import of incompletely decomposed organic matter from the watershed.



Source: U.S. Forest Service, 1980. Vertical photograph

Drainage Basin Characteristics								
Area	4.4 sq mi (11.4 sq km)		Relief	steep		Precip	52 in (132 cm)	
Land Use %	Forest	Range	Water	Agriculture		Irrig	Non Irrig	Urban
	96.6	-	3.4	-	-	-	-	-
Notes	-							
Lake Morphometry				Maximum		Average		
Area	90.0 acres (36.4 hect)		Depth	45 ft (13.7 m)		16ft (4.9 M)		
Ave/Max Depth Ratio	0.360		Volume	1,438 acre ft (1.78 cu hm)				
Shoal area	36%		Volume factor	1.07		Shape factor	1.97	
Length of Shoreline	2.6 mi (4.2 km)		Retention time	2 mo				
Notes	-							
Water Quality								
Trophic status	mesotrophic							
Sample date	09/10/82		Temp	60.4F (15.8C)		Diss. Oxygen (mg/l)	10.3	
Transparency	16.4 ft (5.0 m)		Phosp (mg/l)	0.019		Cholorophyl a (mg/l)	2.5	
Alkalinity	-		Conductivity (umhos/cm)	18		pH	7.3	
Major Ions	Na	K	Ca	Mg	Cl	SO4		
	1.1	0.4	1.8	0.5	0.5	0.1		
Notes	-							



TEMPERATURE AND OXYGEN

