

Water Quality and Dams

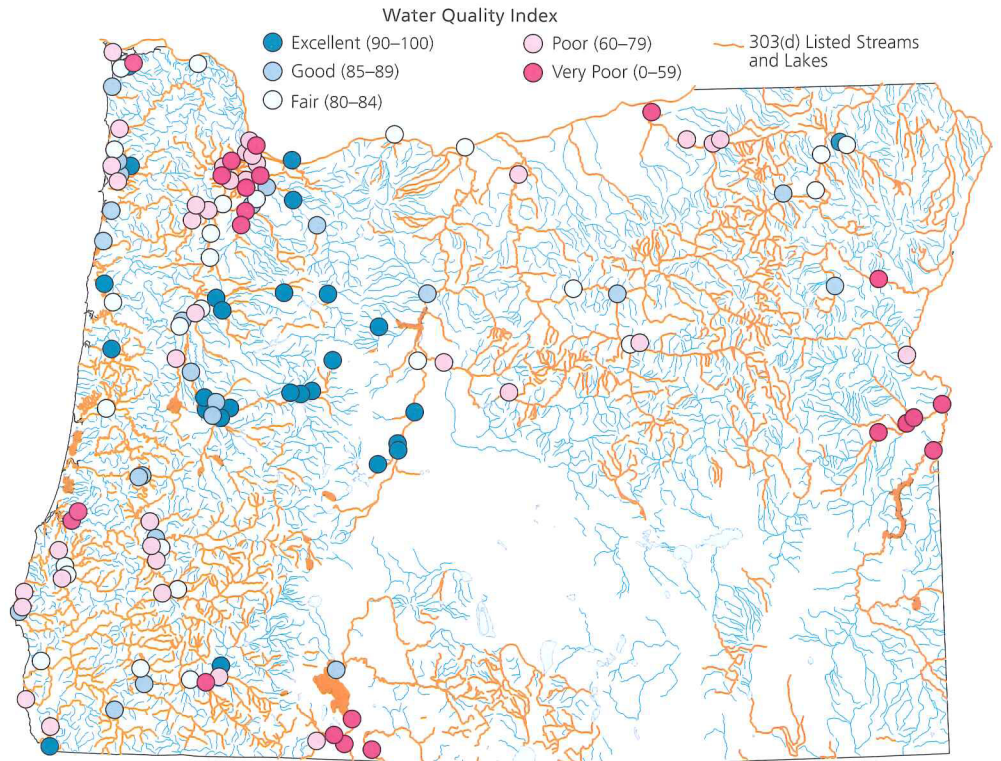
Water Quality

The health of a river or stream depends on many chemical, physical and biological characteristics. The Oregon Department of Environmental Quality has established water quality standards for these characteristics to assess the health of Oregon's rivers, lakes and estuaries. Not all standards are applied to every body of water; each body of water is evaluated using standards related to how it is used (for example, water contact recreation, drinking water or resident fish and aquatic life).

The map at right shows two indicators of water quality in Oregon's rivers. The Oregon Water Quality Index (OWQI), shown as blue to red circles, is a numerical index that combines eight major water quality measures: water temperature, dissolved oxygen, biochemical oxygen demand, pH, nitrogen, total phosphates, total solids and fecal coliform bacteria. The OWQI is measured at about 150 water quality monitoring sites around the state. Based on the OWQI, the Cascades, the Blue Mountains and parts of the Coast Range have the best water quality in the state. The greater Portland area, the Ontario-Vale area in Eastern Oregon and the Klamath Basin tend to have the poorest water quality.

The second indicator, "303(d) listed streams and lakes," is shown on the map as rivers in orange. This list, required under section 303(d) of the federal Clean Water Act, includes bodies of water in which one or more applicable water quality standards is violated. The rivers shown in blue on the map meet all applicable standards or fall into one of two other categories: insufficient data to make a determination or not assessed. About half of Oregon's river miles have been assessed, and of these 30 percent meet all applicable standards, 26 percent are on the 303(d) list, and the remaining river miles meet standards but are threatened. For lakes (many of which were, like river miles, not assessed due to cost) 55 percent meet all applicable standards, 24 percent are on the 303(d) list, and 33 percent meet standards but are threatened. The 303(d) listed rivers and streams are found all across the state, in urban and rural areas. Water temperature is the standard most extensively violated; habitat modification, fecal coliform bacteria or sedimentation standards are also violated in at least 100 Oregon water bodies.

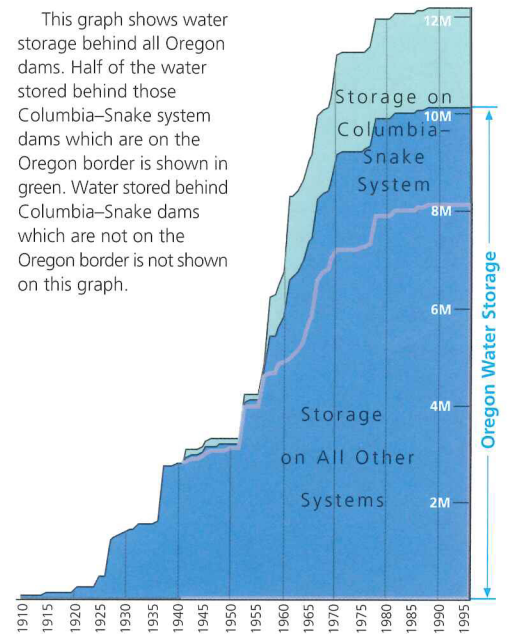
Water Quality



Dams

While dams and reservoirs serve many useful functions, they also have changed the character of Oregon's rivers. Dams are built for water storage, flood control, generation of electric power and recreation. Most dams and reservoirs serve more than one of these uses. Dams and reservoirs also impede fish migration, change river water temperature, interrupt sediment movement and convert river habitat to lake habitat. The major era of dam building occurred after World War II. Three times as many dams were constructed in 1941-1960 as in 1921-1940, but dam building slowed after the 1980s. Recently a few small dams that are obsolete or unsafe have been removed. At many of the larger dams, the timing and amount of water released has been modified to improve ecological conditions downstream. Today in Oregon there are about 1,100 dams that are at least 25 feet high or with at least 50 acre-feet of storage. This map shows 813 dams for which data are available. Most of Oregon's largest dams and reservoirs are operated by the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation or public utility companies.

Water Storage Behind Dams 1910-1995 (millions of acre-feet)



This graph shows water storage behind all Oregon dams. Half of the water stored behind those Columbia-Snake system dams which are on the Oregon border is shown in green. Water stored behind Columbia-Snake dams which are not on the Oregon border is not shown on this graph.

Dam Construction 1880-1998

● Dams constructed during time period ● Dams constructed before time period

