

Introduction

While many people think of “dams” in terms of large federal projects, such as Lookout Point (the reservoir with the largest maximum storage capacity in the WRB at 477,700 acre-ft) or Cougar Reservoir (the reservoir with the highest dam in the WRB at 519 ft above stream level), a significant percentage of dams within the WRB are small private dams constructed primarily for purposes of irrigation (Figs. 36, 37).

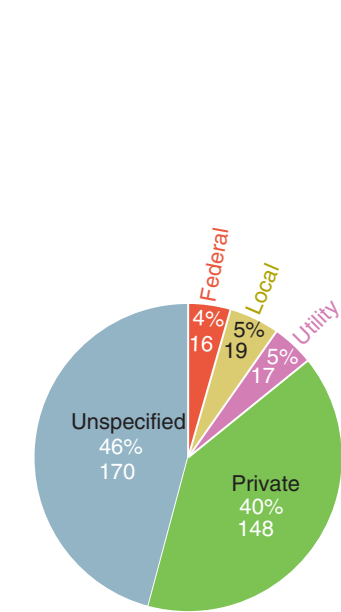


Figure 36. Number of dams within the WRB, by responsible agency. (State responsibility for 1 dam (0.3% of total number) is not shown here).

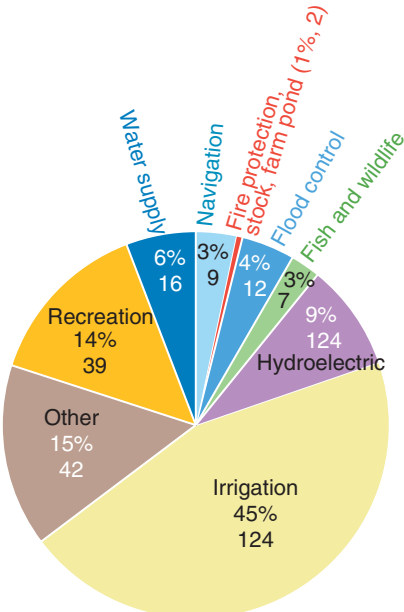


Figure 37. Use of dams within the WRB. Dams with multiple uses are counted multiple times. (The “unspecified” category of dams is not included in this figure.)

Location, Management, and Utilization

Over 2.7 million acre-ft of water can be stored behind the 371 dams in the WRB: an amount equivalent to a foot of water covering over 37% of the surface of the basin. The Tualatin River watershed has both the greatest number of dams (82) and the greatest concentration of dams within a watershed with one dam for every 8.6 mi² of watershed area (Fig. 38). Of the counties within the WRB, Washington Co. has the largest number of dams (79) and the greatest concentration of dams within a county with one dam for every 8.2 mi² of county area within the WRB (Fig. 39).

Figure 38. Number of dams within each watershed of the WRB. The concentration is greatest when the watershed area per dam is smallest.

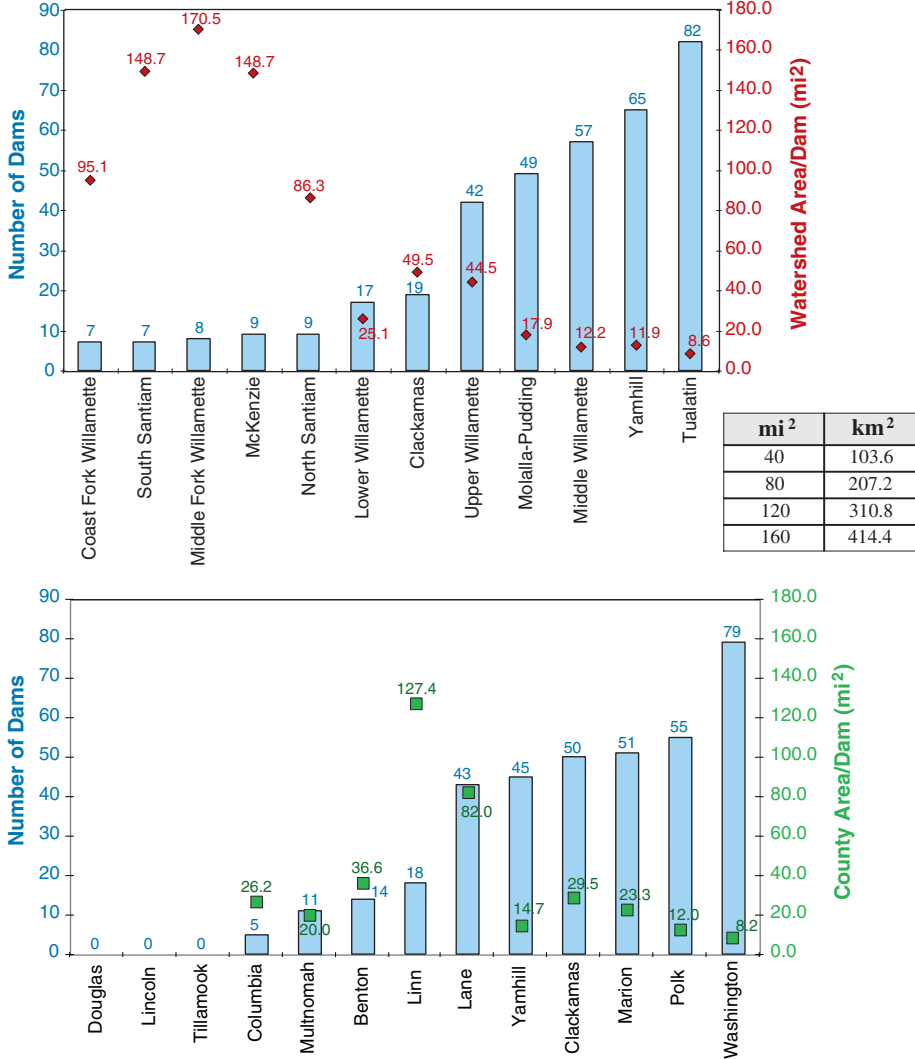


Figure 39. Number of dams in each county of the WRB. The concentration is greatest when the county area per dam is smallest.

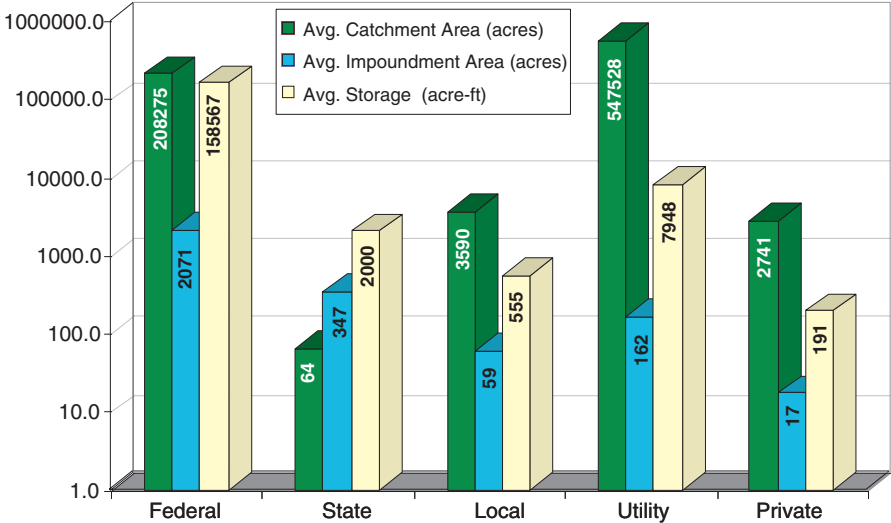


Figure 40. Selected summary statistics of dams by agency. (The “unspecified” category of dams is not included here). Note logarithmic scale.

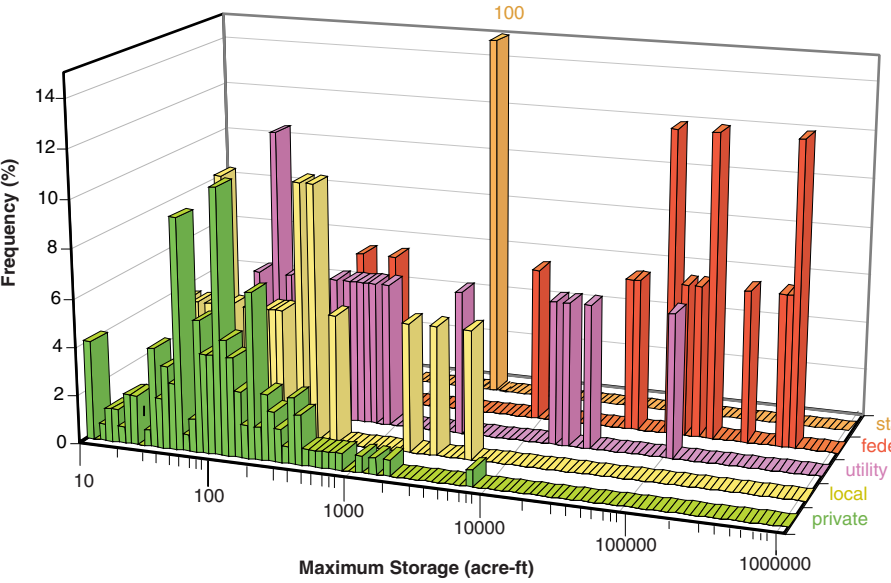


Figure 41. Frequency distribution of maximum storage capacity of dams in WRB by agency. (The “unspecified” category of dams is not included here). Note logarithmic scale for storage.

acre-ft	m ³	acres	hectares
10	12,335	10	4
1,000	1,233,527	1000	405
100,000	123,352,684	100,000	40,470

Federal dams, with an average maximum storage capacity of 158,567 acre-ft, impound the largest volumes of water because of their role in flood control. Private dams store an average of only 191 acre-ft, and impound small drainages averaging only 2741 acres. While local government projects (mainly water-supply reservoirs) similarly impound relatively small areas, utility company dams with hydroelectric generating capacity have large catchment areas, indicative of their locations at generally lower elevations on major rivers (Map 5, Figs. 40,41).

Construction History

The first three dams in the WRB were constructed in 1894 by the City of Portland for water supply purposes. While the construction of dams by local governments has proceeded over time at a low level, most federal and private dams were built during the period 1950-1980 (Fig. 42). Construction has waned since the peak in 1965-1970, and as dams have been implicated in the decline of salmon populations (through changes in river ecology and denial of fish passage) new dam construction has become controversial.³⁹

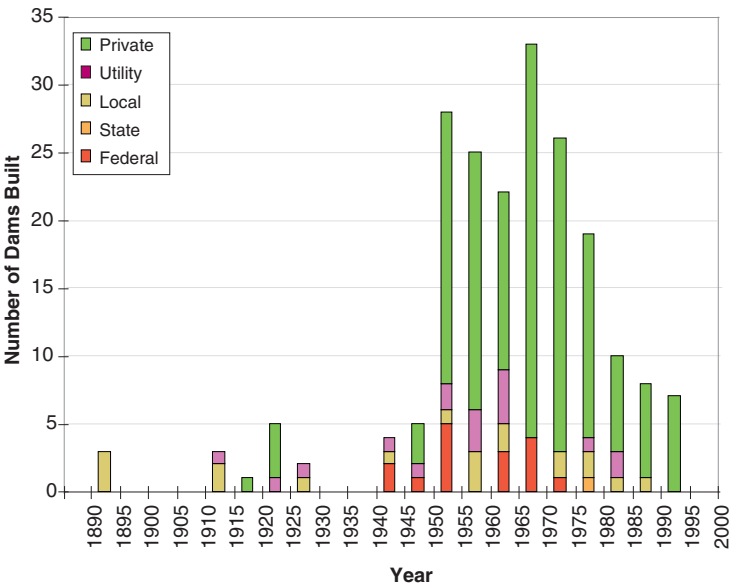


Figure 42. History of dam construction within the WRB, showing the number of dams constructed by different agencies within each five-year interval. (The “unspecified” category of dams is not included in this figure.)

