



INTRODUCTION

In 1945, the State Ground Water Code was enacted to accompany the existing surface-water legislation of 1917. The Washington Division of Water Resources (now a part of the Department of Ecology—DOE) was charged with including ground-water management in its overall responsibilities of statewide water-resources regulation, management, and development. The Ground Water Code requires a water right for withdrawal of water from a well for all purposes except for stock water, for watering of a lawn or noncommercial garden not exceeding 1 acre in area, or for single or group domestic uses or industrial purposes in an amount not exceeding 5,000 gallons per day. The water must be used for beneficial purposes.

The process of filing for a required water right begins with an application for a permit to construct and develop a water-supply system (well and pipeline-distribution system). After the permit is issued and the system has been put into operation for the intended purpose, a certificate of water right is issued that states the location of the well, place of water use, and the amount of water allocated for use, both by maximum quantity pumped instantaneously (gallons per minute) and total quantity used annually (acre-feet per year). The certificate of water right is based on the permittee's filing a notarized statement attesting to the accuracy of the claimed quantity withdrawn from the well during a test and of the claimed use of the water.

SIGNIFICANT FINDINGS

The adjacent map compares the quantities allotted in certified ground-water rights with estimated 1980 ground-water use as shown on sheet 11. The apparent low correlation between DOE records and 1980 pumpage data may indicate that many systems covered by water rights are no longer being used, that the quantities pumped have been reduced since the right was granted, or most likely the use always has been appreciably less than the water right. Overall, only 17 percent of the ground water allocated for use through DOE water-right certificates is apparently being used (1980).

Table 1 is a summary, by island, of the data shown on the map, categorized by water use. On Orcas Island, where water rights exist for 34.9 million gallons per year of ground water for irrigation use, no irrigation is actually occurring from wells. Most wells on Orcas Island are bedrock wells with low specific capacities—wells generally unable to yield the quantities of water necessary for irrigation. In contrast, a somewhat higher correlation exists between water-right allocations and actual pumpage on Lopez Island.

These widespread discrepancies could be due to many factors, among them, the difference between short-term and long-term yields of a well. Several San Juan County residents have reported that, when drilled, their wells yielded quantities of water two or three times greater than those after several years of use. Another possible cause for discrepancy is subdivisions that have not yet been fully developed. For instance, perhaps 10 of 50 lots have been built on, with another 40 owners intending to build and connect to the water system in the future. Thus, water-right allocations reflect the intended future use, rather than the present withdrawal rates. In addition, DOE has had little concrete data available for the decision-making processes and has generally granted water rights to applicants, unless there was evidence that the intended withdrawals were not available or would have adverse effects on existing water systems.

Because many of the sites shown on the adjacent map have not been field located by either the U.S. Geological Survey or DOE, and because of the differences in how and why these two agencies collect and organize their information, a potential error exists when attempting to match a specific water right with its estimated 1980 water use. Nevertheless, the totals in table 1 are not affected by this problem because the potential error is in the location of a well, not its amount of use or allocation.

Sheets 6 through 11 evaluate the relationships between existing ground-water quality and water use. Sheet 11, in particular, discusses coastal regions where high pumpage is already causing seawater intrusion. In these areas, as elsewhere, existing water-supply systems have the right to increase pumpage rates within the limits of their certified allocations. Thus, even without the added pressures of new development, if pumpage is increased to equal the certified allocation (assuming that these rates of withdrawal can be maintained), seawater intrusion could increase and extend into regions that are presently free of contamination.

Sheet 12 has been developed as a tool to aid county planners and developers in the assessment of stress on the ground-water system from pumping. A more detailed site-by-site evaluation of ground-water systems and their present and future water needs will be an important facet of this assessment.

TABLE 1.—Comparison of certified water rights and estimated 1980 ground-water use, in millions of gallons per year

Island		Public supply and recreation	Irrigation	Stock	Commercial/industrial	Total
Orcas	Certified water rights	202.0	34.9	53.1	0	290.0
	1980 water use	38.9	0	1.1	4.5	44.5
San Juan	-----	189.3	8.1	2.6	1.0	201.0
		26.8	0.6	1.7	1.6	30.7
Lopez	-----	92.9	23.1	6.8	11.4	134.2
		21.4	7.4	2.4	1.5	32.7
Shaw	-----	3.9	19.5	0	0.3	23.7
		1.3	0	0.1	.1	1.5
Totals	Certified water rights	488.1	85.6	62.5	12.7	648.9
	1980 water use	88.4	8.0	5.3	7.7	109.4

OCCURRENCE, QUALITY, AND USE OF GROUND WATER IN ORCAS, SAN JUAN, LOPEZ AND SHAW ISLANDS,
SAN JUAN COUNTY, WASHINGTON

Comparison of 1980 Estimated Ground-Water Use with Allocations of Water-Rights Certificates

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Base from U.S. Geological Survey
Orcas Island, Richardson 1:62,500, 1957,
Sucia Island, 1973, Stuart Island, 1952,
Waldron Island, 1954, Roche Harbor, 1954,
Friday Harbor, 1954, False Bay, 1:24,000,
1954.