



Benefits of the Snow Survey and Water Supply Forecasting Program

"Whiskey is for drinkin' and water is for shootin' over", is an old western phrase that pretty much spells out the value of water to the arid, Western United States. Indeed, water that was the critical life enabling resource of the early 1900's, is still the backbone of our agricultural, municipal, industrial, and recreational economies. Adequate water for grain, vegetables, fodder and fruit literally spelled food and fiber for the life of western pioneers.

Waters flowing from those same mountain snowfields today, sustain a broad variety of economies and western societies of millions of citizens. Most now live lives far removed from the rural agrarian scene of the past and perhaps do not fully realize the benefits from this marvelous annual replenishment of life giving fresh water and streamflow. Advancing technology has bridged the gap between the limited seasonal supply and steadily increasing demand. Efficiencies in irrigation of food and fiber, crops and domestic and industrial use, combined with education and informed scientific decision making, have increased the use and reuse of a single unit of water hundreds of times over that of the early developers of this region.

Although primitive by today's standards, the early water users of the West applied ingenuity and hard work to harness the annual flows from the mountains to water their crops, cattle and homes. Not only did they benefit from a stable and improving existence, they established a stable western agrarian society that has laid the infrastructure of today's populous and progressive lifestyle. Over the last one-hundred years, the science of snow surveying and water supply forecasting has reached far beyond the horizons of the vision of Dr. James Church and other early pioneers. Once, the benefits were as simple as the value of a bushel of grain or a ton of hay produced, or a farmstead or home that did not flood. Today the impact of the federally led cooperative Snow Survey and Water Supply Forecasting program is multifaceted and requires sophisticated economic assessment to express the value in dollars or the sustainment and improvement to our environment or quality of life.

An internal US Soil Conservation Service (SCS) study conducted by Ms. Shirley Elliot in 1977 summarized a resultant benefit to cost ratio of about 20 to 1. This study was limited to the impact of accurate snow survey information and accurate and timely forecasts of water supply on the ability to produce high quality agricultural crops in three different regions of Western U. S. The many other uses of this same water were not considered in this study. The Snow Survey and Water Supply Forecasting program has conducted various analyses of its value and importance to

the public. The water users declared through a series of public forums in 1980 that a significant benefit of this program was that its federal nature provided consistent and unbiased information, irregardless of geo-political boundaries or economic interests. A current Natural Resources Conservation Service (NRCS) study of the benefits of this program is scheduled to be released in October 2006.

The nature of activities funded by the federal government through allocation by our U.S. Congress, requires continual evaluation to assure that the taxpayer is receiving a fair and efficient return for their investment. Leaders of the NRCS and this program are held accountable for the efficient use of resources to provide the best quality and relevant products that are justified by public need. We currently report such progress as the number of water supply forecasts issued each season (over 15,000 in 2005) and the number of accesses for data and reports from our web-based central forecasting and data facility in Portland, OR (totaling over 11,000,000 in 2005). This satisfies the question of providing a needed service to the public, but the real total benefit of the snow measurement and forecasting of each subsequent acre-foot of runoff from a mountain snowpack is a complex and elusive value.

In simple terms, every citizen who turns on a faucet or shower in a residence, or waters a lawn, or washes a car, or casts a fly rod in a trout stream, or sets sail on a lake... is using water that is managed more efficiently, because it was accurately forecasted in advance of its melting and flowing from the mountain snow fields. Billions of dollars are realized each year as water provides the medium for generation of hydroelectric power, commercial and recreational river traffic, aquatic habitat, recreation, agriculture and quality of domestic life and industry. Other benefits are unquantified, as minimum streamflows are assured for endangered species, winter travel is safer, Native American water rights and treaties, and river system compacts that allocate the use of the water are managed, balancing need, law and the varying natural supply.

The goal of the Snow Survey and Water Supply Forecasting program remains to provide the most accurate, timely and useful information possible, in order for water managers and users to make wise and informed decisions about the use of our limited seasonal water supply. We provide this information to all without discrimination of any kind. We will also continue to analyze and enumerate the benefits to the water users and citizens of the U. S. in today's world of federal program fiscal accountability.

Jon Werner
Director, National Water & Climate Center
Portland, Oregon