ABSTRACT

The distribution and management of water resources in the Western United States has become a critical issue. Limited and declining sources of water are regulated by legislation. The key regulatory principle is the prior appropriation doctrine that states the senior water rights holders are allowed to use water before any rights granted at a later date. Prior appropriation is significant during dry seasons or low water levels in streams. The regulation of such a system requires a water manager to research the current status and location of each water right and associate it to a parcel and address. Government agencies responsible for regulating water rights in western states have implemented digital mapping and geographic information systems to streamline this process. However, it is necessary to improve the accuracy and availability of the water rights information in digital form to implement an efficient system for compliance investigations during regulation seasons. This study demonstrates the methods utilized to develop an accurate geographic information system in the Umpqua Basin in Oregon to support the Watermaster responsible for regulation through prior appropriation requirements.