CONJUNCTIVE USE IN WASHINGTON:
TESTING THE "SCIENTIFIC IDEAL"

Doug McChesney

ABSTRACT: The state of Washington is presently considering a variety of new approaches to integrated
ground and surface water management, partly in response to a State Supreme Court decision. The Court's
decision, while validating a system that has been characterized as "the scientific ideal", has created new
challenges for managing the state's water resources. It has also provided impetus for a series of innovative
ideas about how to allow additional water uses while still protecting instream flows. These ideas are not
fully developed legally, but some that might once have been thought radical are now being considered by the
Washington legislature. The change in approach stems from the denial, in the mid-1990s, of several major
applications for ground water rights on the basis that the proposed withdrawals would further impair
established instream flows. Instream flows are specifically included in Washington's regulatory scheme.
Several denials were appealed, eventually leading to the Supreme Court's decision.
KEY TERMS: conjunctive use; mitigation.

INTRODUCTION

The term "conjunctive use of water" is commonly defined as the use of groundwater and surface water in
combination. Conjunctive use has been viewed as a means to optimize the yield of a stream and its
underlying aquifer(s). In most instances, this would mean recognizing that the stream and aquifer are
connected and managing them in an integrated fashion. This seems logical, but as Getches notes in Water
Law in a Nutshell: "[although the scientific community has long recognized the interconnection of
groundwater and surface water, the law has been slow to catch up." While this may be true elsewhere in the
United States, Washington has evolved a system of integrated water use that was recently characterized by
Glennon and Maddock as "the scientific ideal."

On October 19, 2000, the Washington State Supreme Court issued its long-awaited decision in the case
of John Postema v. Pollution Control Hearings Board. This decision marked the final resolution of a case
that had its origins in late 1995 and early 1996, when the Washington State Department of Ecology
(Ecology) issued approximately 600 decisions on applications for new water right permits, over half of which
were denials. The basis for most of these denials was that the applications were for ground water that was
hydraulically connected with a surface water source that either 1) had established minimum flows that were
not met a substantial part of the time, or 2) was closed to further appropriation.

Now, in evaluating a new application for a water right, Ecology must consider the effect of the proposed
withdrawal on established instream flows, stream closures, and other environmental conditions. A finding
that any of these conditions will be impaired by a proposed withdrawal can serve as the basis for denial of
the application. Ecology now evaluates new applications in the context of how the proposed water use will
affect not only the most proximate streams but how they could affect overall watershed health. This
includes possible effects on streams that might lie some distance away but can reasonably be considered to
receive their flow from the aquifers that would be tapped.

Ecology's approach to the relationship between proposed ground water withdrawals and surface water
sources both leading up to the Postema decision and in its aftermath has not been universally well received,
because it represents a far more restrictive approach than previously used. Various groups have sought to
overturn the approach and create one more tolerant of additional withdrawals. Little middle ground exists
between the two opposing points of view. The groups that have sought to change the present legal
framework contend that there must be a de minimis (insufficient to warrant concern) standard that can

1 Manager, Policy and Planning Section, Washington Department of Ecology, PO Box 47600, Olympia, WA,
90504-7600, Phone: (360) 407-6647, Fax: (360) 407-7162, E-Mail: dmcc461@ecy.wa.gov.
allow for issuance of additional water right permits without the need for extensive hydrogeologic investigation. Environmental organizations and tribal governments insist that the cumulative effects of ground water withdrawals on surface water sources must be recognized and addressed before new permits can be issued. Thus far, the legislature has been unsuccessful in its efforts to resolve these conflicting views. Washington continues to grow, meaning the pressures on its water resources have likewise continued to grow. New supplies of water are constantly being sought to replace those that have become fully appropriated. The very circumstances that led to the characterization of Washington's system as "scientifically ideal" have made the permitting portion of Washington's system more challenging. Individuals and the state have had to become more imaginative in seeking innovative ways to make existing water sources more productive.

THE STATE WATER CODE

Early in its history, Washington had managed its water resources under a combination of the riparian and appropriative doctrines. Upon adoption of its water code in 1917, Washington followed the lead of other western states in embracing the prior appropriation doctrine as the guiding principle for water resources management. Under this doctrine of "first in time, first in right," holders of senior water rights are protected from impairment from subsequent, junior water users.

Washington's ground water code, enacted in 1945, was established as a supplement to the 1917 water code and provided that surface water rights were not to be affected or impaired by subsequent uses authorized under the ground water code. The ground water code states that if ground water "is part of or tributary to the source of any surface stream or lake, or withdrawal of ground water may affect the flow of any spring, water course, lake, or other body of surface water" (RCW 90.44.030), then the surface water right is superior to any subsequent ground water right. Thus as early as 1945, the state was moving to fully integrate the management of its surface water and ground water resources and to treat them as a single resource. Effective integrated management of surface water and ground water was to take longer and was not accomplished without controversy.

While water rights to be protected under the water code were originally based upon the actual physical diversion or withdrawal of water, the code was silent on protecting instream flows. However, the legislature, in amending the water code in 1979 to address the need to establish and protect instream flows, declared that reservations of water for ..."minimum flows or levels ... shall constitute appropriations within the meaning of this chapter with priority dates as of the effective dates of their establishment" (RCW 90.03.345), thereby bringing instream flows into the regulatory framework. Prior to that, the water code had also been amended in 1971 to require that, in the administration of water allocation and use programs, "full recognition" be given to the "the natural interrelationships of surface and ground waters" (RCW 90.54.020).

PROTECTION OF INSTREAM FLOWS

The water right permitting process in Washington became more complex as the protections accorded senior water rights were extended to instream flows. The value of instream resources had long been recognized; however, the evolution of the tools to protect those instream resources occurred slowly. The value of instream resources was recognized as early as 1949, when the state legislature made it a matter of state policy that "flows of water sufficient to support game fish and food fish populations be maintained at all times in the streams of the state" (RCW 77.55.050). That statute also gave the (now) Department of Ecology the authority to refuse to issue a permit if to do so would lower the flow of water in a stream below the flow necessary to adequately support those populations in the stream.

Starting in the mid-1960s, Washington's legislature passed a series of laws which further reinforced as state policy the need to protect instream flows and gave Ecology the authority to adopt rules to set and protect them. Those laws clearly acknowledged the need to keep water of sufficient quantity and quality within streams and lakes to protect instream and natural values and rights, including wildlife, fish, scenic, aesthetic and other environmental values, and navigational values (RCW 90.54.020). The legislation went on to require that withdrawals of water that would conflict with those values were to be permitted only in cases of clear overriding considerations of the public interest. As noted previously, in 1979 the legislature also gave instream flows the status and protection accorded to permitted water rights.
Ecology has for many years conditioned new water right permits to established instream flows, but these permits were all for surface water. Only in recent years has Ecology included analyzing the effects of proposed withdrawals on a surface water source in its evaluation of applications for new ground water rights. Ecology tried several methods to address these effects, including the use of setbacks of wells some distance from streams and the use of analytical solutions to evaluate possible effects.

All the approaches tried by Ecology allowed continued ground water withdrawals, but theoretically limited the effects of those withdrawals. All were partly based upon the notion that any effect below a certain level was de minimis and the proposed use could thus be permitted. The techniques that were used were employed only to evaluate individual applications and did not consider the cumulative effects that additional withdrawals might have on the overall health of the watershed. Many groups, including tribal governments, were not satisfied with these procedures, as they felt streamflows continued to be depleted as a result of the cumulative effects of those additional withdrawals.

**MANAGEMENT UNDER THE STATE WATER CODE**

Most early water rights, many of which preceded the state water code, were developed using surface water sources due to the ease of development. Ground water use in Washington was largely restricted to domestic supplies. Any regulation of water uses was between various holders of surface water rights. To be able to do that, the state had undertaken an aggressive program of general adjudications of water rights to determine the nature and extent of those older, vested rights.

In the last half-century, the difficulty in obtaining water rights from surface water sources has increased, particularly when those rights would be exercised during the summer months. Additional diversions, even when permitted, were often regulated to protect senior water right holders. As new means for the economical withdrawal of large amounts of ground water became available, individuals seeking new water rights for irrigation, as well as for other uses, turned to ground water. Even holders of senior surface water rights often installed wells for backup or standby use when surface supplies were unavailable.

Increased reliance upon ground water to meet the different growth needs of the state has resulted in the recognition of the possible effects that withdrawal of that ground water can have on surface water rights. Where surface water and ground water were once effectively managed as separate sources, a closer appreciation of their interconnectedness has evolved. Although the water code made protection of existing rights an integral part of state water law and clearly acknowledged the fact surface water and ground water are in most instances connected, the state rarely went to the extent of regulating junior ground water appropriators in favor of senior surface water right holders.

**THE CURRENT SITUATION**

Because water in Washington is allocated on the basis of a permit system, an individual seeking to use of water must make application to Ecology and receive a permit to do so. Ecology is required to investigate an application and make written findings of fact. As part of that investigation, Ecology seeks input from concerned individuals, the Washington Department of Fish and Wildlife, local governments, and concerned Indian tribes about the particular application. Those groups have frequently expressed concerns about the effects of proposed ground water withdrawals on flows in nearby streams.

To be able to issue a permit, Ecology must make the following findings: 1) there is water available for appropriation; 2) the proposed use of water is beneficial; 3) the use will not impair existing rights, and 4) the use will not be detrimental to the public welfare. Two key questions with respect to the possible impairment of a surface water right by a ground water withdrawal are those relating to the availability of water and the potential impairment of existing rights. If all four conditions cannot be satisfied, Ecology is obliged to deny the application absent satisfactory mitigation for any impacts.

Between 1994 and 1996, Ecology conducted watershed assessments of 16 basins across the state. Most of the assessments found that, even in watersheds where new surface water diversions were not being permitted, established instream flows were increasingly not being met, to the detriment of the resources they support, such as fish. Based on these assessments, Ecology issued 600 water right decisions, over half of which were denials. Ecology's reasoning behind the denials was that if no further surface water diversions could be permitted, then ground water withdrawals that captured that same surface water should be held to the same standard. Appeals of the denials eventually led to the *Postema* decision, which upheld
the denials. As discussed previously, Ecology now has incorporated review of the potential effects of a proposed withdrawal on established instream flows, stream closures, and other environmental conditions in its evaluation of any application for a permit to use ground water.

NEW WAYS TO MEET WATER NEEDS

Washington views some form of conjunctive management of surface and ground water as a viable means for enhancing current water supplies. Although in some cases the legislature has yet to embrace this concept fully, support for it is growing, especially with the recognition that traditional alternatives for securing new water supplies are becoming increasingly limited.

The array of options the state is considering to augment existing water supplies extends well beyond just the realm of conjunctive water use. Still, the overall climate cycle of the state is such that, at certain times of the year, water is available for additional development in many areas. While considerable support remains for traditional hard solutions, such as surface water reservoirs, that support is by no means universal. Meanwhile, softer solutions such as conjunctive use appear to offer the greatest promise for near-term supplies. Some of the more promising approaches follow:

Mitigation

Washington's statutory framework for mitigation was enlarged in 1997 in the aftermath of the trial court decisions the eventually led up the Supreme Court ruling in Postema. However, that framework continues to be poorly defined. Ecology proposed legislation in 1999 that would have provided principles for a broader range of mitigation measures, but that proposal failed to pass. Lacking clearer policy guidance, mitigation measures are presently evaluated on their individual merits. Ecology today commonly issues water right permits on a case-by-case basis that include mitigation measures acceptable to both the applicant and the department. While the realm of acceptable mitigation measures awaits broader and clearer definition, mitigation is consistent with rational watershed management, a major objective of the state both in terms of water management and promoting the recovery of salmon species.

In-Kind Mitigation

For those parts of Washington where the issuance of new ground water rights would be expected to cause impairment of senior surface water rights, including instream flows, the most promising opportunities for addressing the issue appear to be in the realm of mitigation for impairment of those existing rights. Some of the constraints that exist in current statute are that any mitigation measure must be effective at the point of impairment and only in-kind mitigation measures (replacing water with water) can be employed. This "same time, same place, and same amount" requirement obviously limits the types of measures that can be employed. Nonetheless, opportunities for in-kind mitigation do exist.

The most obvious type of in-kind mitigation measure is simply the acquisition or retirement of an existing upstream water right. For many reasons, including changes in land use patterns and reduced value of land for agricultural production, well-established water rights frequently become available for transfer to meet new uses. The limitations to the transfer of existing rights are twofold. First, the right must have been exercised within the previous five years or it is legally considered relinquished. Second, the amount of water that may be transferred may be limited by the amount of water put to beneficial use under the right in recent years. While both of these limitations serve as a disincentive to the use of transfers of existing rights as mitigation measures, recent changes to the laws regarding the sale, lease, or donation of water rights to help provide for instream flows have made it easier to protect those rights from loss due to inactivity.

Other in-kind measures might include streamflow augmentation through one of a variety of means. The 1997 amendments to state law that enlarged the overall framework for mitigation included a specific provision that would allow an applicant for a water right to use water stored off-channel in a pond and then slowly released during critical parts of the year to offset any effects of the ground water withdrawal. This approach can only be initiated by an applicant and Ecology cannot require it as a condition for a water right permit. To date, no one has sought to use this approach.

Water right permits issued recently by Ecology often contain "pump and dump" provisions that require the permit holder to discharge a portion of the ground water withdrawn to the stream to offset the effects of
the pumping on the stream during critical times of the year. “Pump and dump” mitigation measures can be clearly demonstrated to meet the “same time, same place, and same amount” requirements for replacing water lost to a stream through a new withdrawal. Additionally, such “pump and dump” provisions are easily understood by both Ecology and the applicant, and compliance is easy to achieve.

Out-of-Kind Mitigation

A more controversial approach to mitigation is one that would allow a water right applicant to undertake measures outside the concept of “same place, same time, and same amount,” yet would still allow withdrawals of ground water. In many stream reaches in the state, salmon species have been more affected by habitat changes that resulted from activities not directly related to streamflow. The notion is that, by providing various improvements to offset damage to fish habitat, such as restoring or improving channel conditions, restoring riparian zone shade cover, or placing large woody debris in channels, the public benefit would be greater than the harm resulting from the additional depletion in streamflow. The 1997 amendments provided the legal framework for such measures, allowing for the employment of “other natural resource techniques” in conjunction with an application for a water right permit (RCW 90.03.255 and RCW 90.44.055). However, the legislation provided little guidance as to what techniques would be acceptable.

While measures of this sort can be attractive in streams where salmon habitat has been damaged while flow conditions remain adequate, that is not the case for all streams in the state. Furthermore, much needs to be done to integrate this approach into the existing water management scheme. For example, while water right permits are, in effect, issued in perpetuity conditional upon the water being put to continued beneficial use, out-of-kind mitigation measures such as those mentioned above would require ongoing activity to ensure their continued effectiveness and avoid the need for post-permit regulatory action. As the State Supreme Court noted in an unrelated case, Ecology v. Campbell & Gwinn, “after-the-fact remedies will not serve the legislative purposes as effectively as review before appropriation occurs.”

Additional questions arise as to how rights issued with out-of-kind mitigation requirements would be integrated into the state’s overall water management scheme. Would such rights be conditioned to the established instream flows and therefore be subject to regulation (curtailment) during times when flows were not met? The administrative body that hears appeals to Ecology water rights actions, the Pollution Control Hearings Board, has already disallowed certain “creative” approaches to out-of-kind mitigation, observing that some could violate the “first in time, first in right” principle of the state water code.

Finally, Ecology recently issued a report evaluating the success of Washington’s wetland mitigation program. The report found that only 46 percent of the mitigation projects were fully or moderately successful while the rest were only minimally successful or not successful at all. To be sure, wetland mitigation is not water rights mitigation. However, wetland mitigation has been far more extensively investigated and Washington’s experience with wetland mitigation should serve as a cautionary note as the state delves further into out-of-kind mitigation for new water rights.

Aquifer Storage and Recovery (ASR)

Washington has long had provisions allowing for aquifer storage and recovery (ASR) but they have not been extensively used. The process for permitting such projects required that the area where the water was to be stored be designated a “Ground Water Management Subarea” by administrative rule. Washington’s rulemaking process has become increasingly expensive and time-consuming in recent years, making that option less desirable. To date, just three Ground Water Management Subareas have been created.

While several ASR projects are actively being pursued at present, most remain in the early stages of investigation and development. In 2000, the legislature passed a bill that required ASR projects be permitted in the same manner as surface water reservoirs. Ecology is currently in the process of adopting rules outlining the process for the permitting of ASR projects.

While the purpose behind most ASR projects is to store water during times of abundance for later use during times of shortage, other purposes for ASR projects have been suggested in Washington. Both tribal and local governments have expressed interest in using ASR as a means to augment late-season low flows to promote salmon recovery. This idea might not fit the commonly understood definition of an ASR project, but it appears to be possible under the new ASR law. The idea would be to recharge aquifers during periods of high surface water discharge and then let the recharged water naturally discharge to the streams over the
course of the year. This approach would require the appropriate hydrogeological conditions, and other water rights questions would need to be resolved, but it does appear feasible in several parts of the state.

Watershed Planning

A last approach to conjunctive use that has received the strong support of the legislature is watershed planning. Framed around large-scale watersheds, called Water Resource Inventory Areas, the watershed planning process is designed to allow local citizens, local governments, and tribes to form planning units to develop watershed management plans. State agencies provide technical assistance and, if requested, serve on the planning bodies. Planning units organized under the legislation are required to make a detailed assessment of an area's current water supplies and uses and recommend long-term strategies to provide adequate water for fish and future growth. The plans are to evaluate a host of possible measures for meeting instream flows and providing water for future out-of-stream use. Included among the measures to be addressed is "aquifer recharge and recovery." While not specifically mentioned by name, conjunctive water use is another strategy that the planning units will be expected to evaluate. Watershed planning groups have already expressed strong interest in exploring the opportunities provided by conjunctive use.

CONCLUSION

While Washington may have a "scientifically ideal" approach to the integrated management of surface water and ground water, that system for water management is not without its problems. The need to consider the effects of proposed ground water withdrawals on surface water rights, including instream flows, has made the issuance of new water right permits more difficult unless they contain a mitigation component. And options for mitigation are limited given present statutory constraints.

Despite those shortcomings, Washington continues to view a more effective program of managing surface water and ground water as a single resource as a promising opportunity for providing water to meet the state's future needs. Such a program could also aid in preserving and protecting the state's valuable natural resources, included endangered salmon species. Much of the statutory framework already exists and the legislature will undoubtedly consider improvements in the future. If the citizens of the state are to continue to enjoy the benefits of economic growth and environmental quality, more imaginative ways of extending the state's existing water supplies need to be developed. There is a need to create the broader public recognition that water really is a limited resource, even in Washington. Only then will the political support for making the necessary improvements to the state's water management scheme be fully realized.

ACKNOWLEDGEMENTS

I would like to thank Lynne Geller and Ben Bonkowski for their help with the preparation of this paper. I would also like to extend my thanks to those who reviewed the paper for AWRA.

REFERENCES

John Postema, et al. v. Pollution Control Hearings Board, et al., 142 Wn.2d 68 (October 19, 2000).