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COLORADO WHITEWATER COURSES AND WATER RIGHTS

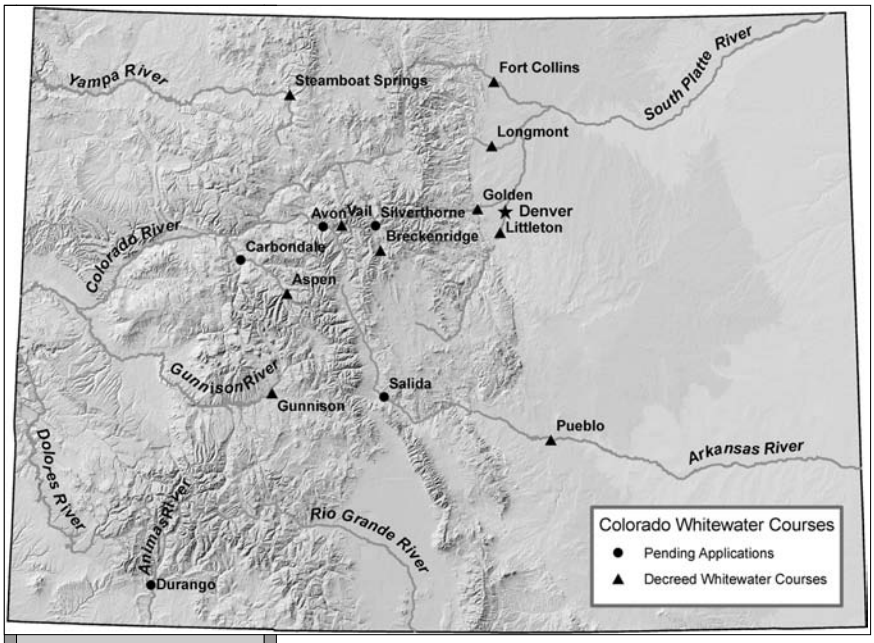
by Kenneth W. Knox, Ph.D., P.E., Colorado Division of Water Resources (Denver)

Introduction

The State of Colorado, similar to many other regions throughout the United States, is blessed with rivers and streams of exquisite beauty. Many of these streams cascade through the mountains and flow toward the oceans with sufficient slope to offer rafting, kayaking, canoeing, and other types of boating opportunities from early spring through the summer and autumn months until winter ice encroaches. Individuals have enjoyed river boating opportunities for decades in the natural stream channels throughout Colorado. Within the last few years, the number of whitewater enthusiasts has increased dramatically and prompted an expanding demand for defined courses that include structures designed to enhance whitewater features. Local municipal and county officials have responded by constructing whitewater courses or river parks in their quest to capture the economic incentives from this burgeoning recreational interest. A map (page 2) and a table (spanning pages 4 and 5) have been included to help illustrate the range of existing and pending whitewater courses within Colorado.

This article provides a measure of practical insight into the legal, technical, and administrative disciplines relevant to water resource management that are impacted by whitewater courses. To begin, it is important to establish the terminology and physical characteristics that pertain to a whitewater course. As to terminology, a "**r**ecreational **i**n-**c**hannel **d**iversion" (RICD), "whitewater course" and "kayak course" are used interchangeably and considered to be synonymous. These terms refer to the physical characteristics of a "whitewater course" and are distinct from the water rights that seek to provide a protected source of water to flow through these structures.

Whitewater courses are constructed within a predefined stretch of a natural river channel or stream corridor. These courses include drop structures and other flow-altering structures constructed within the stream to provide near-instantaneous course changes, elevation drops, standing waves, and other turbulence-inducing features that enhance the "ride" within a predefined stretch of a stream corridor. The structures are typically constructed of large boulders placed in accordance with a professional engineering design to retain their structural integrity under high flows and provide varying levels of whitewater challenges to enthusiasts with different degrees of proficiency under changing river flows. The hydraulic structures are keyed (i.e., anchored), into the banks of the river and the river channel for stability. They are often grouted or cemented for additional structural strength. Construction activities within the natural stream channel are subject to federal compliance with the "dredge and fill" requirements in Section 404 of the Clean Water Act (33 U.S.C.A. § 404). As previously mentioned, these whitewater courses are constructed within or adjacent to municipalities, therefore they often include spectator seating along the river corridor to offer unobstructed views to friends, families, and others enjoying the aquatic athleticism of whitewater enthusiasts.



"Diversion"

Instream v. Recreational

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Legal Foundation for Water Rights

The legal premise for appropriating water rights for a whitewater course is founded upon the long-standing recognition of "recreation" as a beneficial use of water. Recreational beneficial use includes rafting, canoeing, kayaking, and other boating activities that are generally considered to be non-consumptive uses. Similar to all water rights, the beneficial use of water for whitewater courses is considered the basis, measure, and limit of its water right. Therefore, this use is also entitled to "that amount of water that is reasonable and appropriate" to accomplish its intended purpose — but only to the extent it is applied "under reasonably efficient practices without waste" (Section 37-92-103(4), Colo. Rev. Stat.).

Perfection of a water right to a protected status requires formation of "intent" to appropriate water and subsequent diversion and application to a beneficial use. For a conventional direct flow water right, a "diversion" is the physical removal of water from the stream through a headgate or other diversion structure and its conveyance in a ditch, canal, or pipeline for delivery to its intended beneficial use. By contrast, a recreational instream water right "diversion" requires no such removal and their application to beneficial use is confined within the natural stream channel. The test for a recreational in-channel diversion is "control" of water in the natural stream channel. Colorado water courts have consistently held that structures built in a stream channel to create whitewater features exercise "control" in a manner that constitutes a "diversion" of water by the concentration and direction of flow through a whitewater course (§ 37-92-103(7), C.R.S.; *City of Thornton v. City of Fort Collins*, 830 P.2d 915, 930 (Colo. 1992)).

It is necessary to carefully portray the distinction between water rights associated for instream minimum flow water rights and recreational rights for whitewater courses, as well as to describe the entities that may seek these different appropriations. Instream minimum flow water rights may be appropriated exclusively by the state agency known as the Colorado Water Conservation Board (CWCB) with intent to "preserve the natural environment to a reasonable degree" (§ 37-92-103(4), C.R.S.). Recreational water rights associated with whitewater courses, on the other hand, may be appropriated only by a municipality, county, water district, water and sanitation district, water conservation district, or water conservancy district (§ 37-92-103(7), C.R.S.). Individuals, businesses, environmental or other community-based coalitions, and the federal government are examples of entities that are precluded from appropriating a recreational in-channel water right. To access information regarding the statutes, rules and policies governing RICDs, see the Colorado Water Conservation Board's website: http://cwcb.state.co.us/WaterSupply/RICDRules.htm.

In addition to ownership, the quantity of water sought for appropriation is a significant difference between the two types of water rights. As indicated in its nomenclature, instream "minimum" flow rights represent only the amount necessary to provide a baseline flow to serve its intended purpose. As such, this amount represents some fraction of the total amount of streamflow available. Appropriators for whitewater courses, however, typically seek water rights that command the entire peak flow of the river to maximize the recreational experience. The data presented in Table 1 depicts the amount of water sought for appropriation, the amount decreed, and the historic average streamflow recorded by a gauging station above the individual whitewater courses in Colorado.

Roles and Responsibilities

Although the technical, legal, and administrative issues that are pertinent to whitewater courses are of interest to municipalities, rafting companies, kayak rental businesses and individuals, this paper focuses upon the roles and responsibilities of three key entities in Colorado. The first entity offered for consideration is the Colorado Water Conservation Board (CWCB). Within thirty days of filing an application in water court for a recreational in-channel diversion, the applicant is required to submit a copy of the application to CWCB for review. Following a public hearing (if requested by any party), CWCB was, until recently, required to consider five areas of inquiry and provide written Findings of Fact

Colorado Whitewater

CWCB Considerations

2006 Legislation

Water Court

State Engineer

Upstream Concerns

to the water court. The Findings create a rebuttable presumption of fact and include a final recommendation as to whether the application should be granted, denied, or granted with terms and conditions (§ 37-92-102(6), C.R.S. (2001)).

THE FIVE FACTORS THAT WARRANTED CWCB CONSIDERATION INCLUDED:

1) Whether the adjudication and administration of the RICD would impair the ability of Colorado to fully develop and place to consumptive beneficial use its compact entitlements
2) The appropriate reach of stream required for the intended use
3) Whether there is access for recreational in-channel use
4) Whether the RICD use would cause material injury to appropriated instream flow water rights
5) Whether adjudication and administration of the RICD would promote maximum utilization of waters of the State

Legislation enacted in the 2006 session (Colorado Senate Bill 06-037) eliminated the second and third of these factors, leaving consideration of compact development, potential injury to instream flow water rights, and maximum utilization of water as the factors for consideration by the CWCB in future RICD water right applications. To assist water users and provide transparency in its deliberative process, the CWCB promulgated *Rules Concerning Recreational In-Channel Diversion* that set forth the procedures to follow when applying for an RICD, as well as the procedures and types of information used by the CWCB in making its Findings and recommendations to the water court (2 C.C.R. 408-3 (2001)). The legislation also eliminated the requirement for a formal hearing before the CWCB.

The second key entity within the RICD process in Colorado is the water court. In 1969, the Colorado General Assembly enacted the Water Right Determination and Administration Act, which in part, created the present water court system to replace the adjudication of water rights in individual county district courts. Seven water courts were established, one in each of the seven major river drainage basins within the State. The water judge in each water court retains "exclusive jurisdiction of all water matters within the division" (§ 37-92-203, C.R.S.).

When adjudicating an RICD water right application, the water judge presumes the Findings of Fact made by the CWCB are true and accurate — though subject to rebuttal by other evidence.

THE WATER JUDGE THEN MAKES AN INDEPENDENT FINDING THAT THE RICD WILL:

- Not materially impair the ability of Colorado to fully develop and place to consumptive beneficial use its compact entitlements
- Promote maximum utilization of waters of the state
- Include only that reach of stream that is appropriate for the intended use
- Be accessible to the public for the recreational in-channel use proposed
- Not cause material injury to instream flow water rights (§ 37-92-305(13), C.R.S.)

The third and final entity involved is the Colorado Division of Water Resources (DWR), also known as the State Engineer's Office. The DWR serves two roles regarding a RICD water right. First, the DWR provides a written consultation report to the water court that addresses the potential impacts of a proposed RICD to existing water rights within the river basin, and suggests terms and conditions that would assist in the administration of the RICD within the priority system. Following adjudication of the RICD water right, the DWR has exclusive responsibility to assure that the RICD — like all other water rights — is incorporated within the stream system and that appropriate administrative actions to fulfill the flow demand for the RICD are applied, based upon its relative priority date to other existing water rights, as well as water availability (§ 37-92-501 C.R.S.). Thus, the RICD's water right is fulfilled under the Doctrine of Prior Appropriation ("first in time, first in right") if water is available in the stream to provide for the RICD's flow rate based on its seniority rank amongst all water rights.

Challenges that Arise from Whitewater Courses

The overarching challenge in all water management activities in the arid western United States is meeting existing demands with limited water supplies. The inclusion of whitewater courses inevitably increases the acute competition for limited surface water supplies in both the amount of water available for distribution and the extension of time or season when supplies are insufficient to meet demands.

Appropriation of a recreational water right for a whitewater course often induces a significant concern by local government officials and property development interests upstream of the course that the appropriation will result in no other water rights being available in the future. As noted above, proponents of whitewater courses typically seek to appropriate a high amount of flow to maximize the turbulence created by the structures built in the course and thereby enhance the recreational experience. The priority date of these RICD water rights is relatively "junior" (i.e., established later in time to other existing water rights). In many Colorado streams there is only enough water available for junior water

Water Rights for Colorado Whitewater Courses (cubic feet per second) *

City	Case Number	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fort Collins	86CW371, div 1												
	Application	55	55	55	55	55	55	55	55	55	55	55	55
	Decree	5	5	5	5	30	30	30	30	5	5	5	5
	Historic Daily Streamflow	15	15	16	46	213	425	112	37	19	18	14	12
Littleton	94CW273, div 1												
	Application	100	100	100	100	100	100	100	100	100	100	100	100
	Decree	100	100	100	100	100	100	100	100	100	100	100	100
	Historic Daily Streamflow	8	12	22	65	174	188	150	93	21	10	19	8
Golden	98CW448, div 1												
	Application	101	75	96	255	1000	1000	1000	559	251	143	103	70
	Decree	70	70	70	255	1000	1000	1000	559	251	143	103	70
	Historic Daily Streamflow	23	22	23	39	162	378	223	104	63	44	32	26
Vail	00CW259, div 5												
	Application			54	227	400	400	400	218	67	48	31	
	Decree			54	227	400	400	400	218	67	48		
	Historic Daily Streamflow	8	8	11	32	186	218	53	20	17	15	11	9
Breckenridge	00CW281, div 5												
	Application				39	281	524	343	205	82	51	27	
	Decree				39	281	500	343	205	82	51		
	Historic Daily Streamflow	3	3	2	5	29	56	40	21	12	10	7	5
Aspen	00CW284, div 5												
	Application						270	350	33				
	Decree						270	350	33				
	Historic Daily Streamflow	13	12	13	24	96	198	92	33	24	21	17	14
Longmont	01CW275, div 1												
	Application	68	72	95	291	765	1020	309	327	204	133	104	92
	Decree			50	50	350	350	150	100	100	50		
	Historic Daily Streamflow	0	2	2	8	33	69	9	5	5	3	2	0
Pueblo	01CW160, div 2												
	Application	100	100	500	500	500	500	500	500	500	500	500	100
	Decree	100	100	250	400	500	500	500	450	300	250	200	100
	Historic Daily Streamflow	47	60	139	249	525	990	648	395	149	108	95	50
Gunnison	02CW038, div 4												
	Application					1190	1500	1100	460	300			
	Decree					875	1200	975	400	300			
	Historic Daily Streamflow	106	103	126	303	908	1227	631	366	269	200	149	119
Steamboat Springs	03CW086, div 6												
	Application				500	1200	1700	300	120	120	120		
	Decree				400	1000	1400	250	95				
	Historic Daily Streamflow	51	52	84	326	865	896	180	75	55	68	64	53
PENDING APPLICATIONS													
Silverthorne	04CW217, div 5												
	Application					100	100	100	100	100			
	Historic Daily Streamflow	39	39	41	63	156	351	209	119	79	61	49	43
Salida	04CW129, div 2												
	Application	250	250	250	250	1800	1800	700	700	250	250	250	250
	Historic Daily Streamflow	178	174	168	193	515	1024	706	430	242	202	208	190
Avon	05CW258, div 5												
	Application				200	350	350	350	200				
	Historic Daily Streamflow	30	28	37	115	574	756	295	110	68	54	40	32
Durango	06CW009, div 7												
	Application	185	185	250	850	1250	1400	900	400	300	185	185	185
	Historic Daily Streamflow	102	104	150	424	1159	1415	595	290	230	205	144	112
Carbondale	06CW077, div 5												
	Application	230	230	230	390	1160	1600	970	340	310	310	250	250
	Historic Daily Streamflow	119	109	97	170	443	716	410	250	210	186	140	124

* As decreed, some flow rates vary within a given month. See the individual decrees for specifics.

Fort Collins

Littleton

Golden

Vail

Breckenridge

Aspen

Longmont

Pueblo

Gunnison

Steamboat Springs

Silverthorne

Salida

Avon

Durango

Carbondale

Water Availability

Stipulations

rights to divert during peak spring runoff or extensive rainstorms, in order to satisfy the senior (earlier in priority date) water rights.

The consternation of the upstream opposition is their perception that, since Colorado administers water in accordance the Doctrine of Prior Appropriation (priority system) there will be little, if any, water available for future development upstream of a whitewater course because the exercise of an RICD water right will require delivery of all remaining water in the stream through the course from early spring until late autumn. Concerns continue over the potential loss of economic value and land use development by those opposed to the adjudication of recreational in-channel water rights, but contractual stipulations between the proponents and opposition of the rights have dealt with those concerns in several previous court cases. Examples of such stipulations can usually be found in the adjudication case files with the water court. For instance, RICDs for both the City of Golden (Case No. 98CW448 in Water Division 1) and the City of Steamboat Springs (Case No. 2003CW86 in Water Division 6) involved stipulations with many opposing parties.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
						Historic Daily Streamflow in ACRE FEET						
	911.00	866.00	962.69	2,724.41	13,079.76	25,287.28	6,877.15	2,248.87	1,102.98	1,098.31	831.74	738.44
	465.18	685.06	1,346.48	3,890.29	10,727.44	11,188.86	9,227.09	5,712.12	1,276.38	598.12	1,150.62	491.18
	1,398.74	1,222.52	1,383.81	2,341.45	9,963.45	22,507.19	13,708.55	6,384.00	3,740.39	2,676.52	1,902.81	1,581.65
	504.17	443.67	668.83	1,931.33	11,452.33	12,964.17	3,246.17	1,254.67	983.58	896.67	628.83	556.67
	198.14	140.94	150.03	324.07	1,757.10	3,328.86	2,443.13	1,278.11	742.09	603.24	411.52	304.55
	782.08	677.76	810.94	1,417.74	5,882.28	11,781.06	5,686.72	2,036.28	1,454.50	1,286.08	985.72	870.74
	-	91.60	142.58	463.17	2,022.53	4,110.32	560.27	334.05	296.17	210.46	116.00	22.70
	2,910.37	3,383.50	8,523.27	14,838.24	32,290.46	58,892.94	39,830.59	24,309.35	8,883.35	6,643.49	5,678.68	3,086.77
	6,521.39	5,746.38	7,767.72	18,031.56	55,809.25	73,008.70	38,800.78	22,515.15	16,011.57	12,277.03	8,883.86	7,301.72
	3,110.83	2,902.93	5,183.97	19,406.79	53,187.91	53,297.52	11,064.79	4,632.65	3,292.89	4,160.43	3,797.53	3,238.96
	2,374.70	2,196.28	2,520.33	3,760.57	9,576.98	20,858.72	12,863.41	7,333.35	4,723.67	3,746.91	2,944.04	2,625.27
	10,918.68	9,765.36	10,314.48	11,470.64	31,656.84	60,945.36	43,423.78	26,428.11	14,385.54	12,391.50	12,367.59	11,705.34
	1,840.18	1,588.71	2,281.82	6,830.65	35,300.94	44,966.47	18,160.29	6,757.12	4,046.82	3,338.18	2,399.94	1,990.35
	6,280.78	5,808.62	9,210.40	25,223.19	71,269.57	84,227.66	36,587.99	17,846.39	13,712.01	12,625.58	8,557.43	6,868.94
	7,287.71	6,116.43	5,966.92	10,121.75	27,210.12	42,632.50	25,227.25	15,394.00	12,482.62	11,455.86	8,322.57	7,637.86

Water Control

Resource Allocation

Upon adjudication of the recreational in-channel water rights, the DWR is responsible for incorporating these rights into the priority system and the hydrologic nuances of each different stream system in the daily water administration process. The ensuing narrative attempts to address the predominant water administration issues that challenge water administration officials and water users.

The first issue relates to resource allocation. Similar to other adjudicated water rights, an RICD imposes additional workload demands upon the State's water administration officials. It is important to recognize that, although new water rights may retain a junior water right priority, their value and ability to exercise demands for water delivery are not diminished — they retain equal significance to all other water rights and are afforded an equitable allocation of water administration service. The problem facing all water users is an increasing number of adjudicated water rights, often with higher levels of complexity, without a commensurate increase in personnel or operating funds necessary to adequately incorporate additional water rights in an already saturated water allocation system.

The twin pillars of water allocation practice in Colorado are to maximize the beneficial consumptive

Colorado Whitewater

"Waste"

River "Call"

Administration Complexities

Beneficial Use

Evolving System

use of water and do so in a manner without "waste" of the precious resources. It is the identification and assessment of "waste" that poses a difficult conundrum for water administration officials. The first aspect that draws attention to recreational in-channel use is the actual application of water to its intended beneficial use. In a conventional water administration action — that requires curtailment of junior water rights to meet the demand of a senior irrigation water right — the efficient delivery of water to croplands during the growing season satisfies the intuitive conclusion that the irrigation water right is being satisfied because water is a necessary component in plant growth. In a similar manner, the enjoyment of kayak or other boating enthusiasts (regardless of varying skill levels or types of watercraft) in a whitewater course appears to satisfy the RICD water right. One discrepancy in this simplistic analogy arises where the owner of an RICD chooses to exercise their authority to demand curtailment of junior water rights ("call" the river), to provide sufficient flows to meet their adjudicated whitewater flow rates when there are no boating enthusiasts present on the whitewater course.

A parallel water administration "waste" issue occurs in regard to fulfillment of a RICD water right in daily water allocation practices. For example, the City of Steamboat Springs (City) was decreed a RICD water right on March 13, 2006 with variable flows over the duration of the boating season for its whitewater course (Case No. 2003CW86 in Water Division 6). The decree specified the City was limited to its entitlement of whitewater recreational flows from 8:00 a.m. to 8:00 p.m. each day. Certainly, it is appropriate that the adjudicated flows represent the time of intended use by whitewater enthusiasts during daylight hours. However, this schedule of water administration is difficult to implement. Actual water administration requires curtailment of water rights junior to the RICD in amount and location necessary to satisfy the demand of the RICD, with no time constraint. To place the issue in proper context, the junior water rights may be located tens or hundreds of miles upstream, on all tributaries throughout a watershed and the transit time from each, separate, junior water right to the whitewater course is highly variable and may extend from minutes to days based upon their relative proximity. It is appropriate that the City enjoy the same confidence as all other water rights owners that subsequent junior water rights will be curtailed to meet their demand. The crux of contention centers upon the issue of waste versus finite resources. Natural river flows, diversions, and the ensuing return flow patterns from these diversions are in a perpetual state of change. With finite human and fiscal resources, it is problematic to assume junior water rights throughout the basin upstream of a whitewater course will be turned off to meet the downstream demand for increased flows through a whitewater course and then turned on later in the same day so they may apply water to beneficial use, while simultaneously preventing the waste of unused water flowing through the whitewater course at night. Further compounding the administrative complexity, the City was granted the ability to extend its entitlement from 8:00 p.m. until midnight for up to 10 days between April 15 and July 15 for nighttime competitive events upon prior notification to water administration officials.

Opportunity and Enhancements

At this juncture, it is appropriate to return to the first tenet of water law and administration to consider if the diversion structures constructed within a whitewater course satisfy the mandate to maximize the beneficial use of limited water resources. The evidence clearly supports the assertion that these water control structures do indeed maximize the beneficial use of water. In addition to the sheer enjoyment a whitewater course provides to individual participants and spectators, consider the tangible economic benefits they provide to the sponsoring community. The testimony provided by representative city managers, municipal park and recreation directors, economists, and local business owners is a consistent proclamation that the accrued financial benefits to a local business community are significant. In some communities, the incremental annual revenue has exceeded over $1 million that has been attributed exclusively to the commerce derived from a newly constructed whitewater course (City of Golden, Case No. 98CW448 in Water Division 1).

The challenges previously described may be used as arguments by those seeking to dismiss the adjudication of recreational in-channel diversions for a whitewater course as being unnecessary. It is precisely that conflict that provides the impetus for advancing the daily practice, and art, of water administration. An objective and critical review of historical water legislation, judicial decisions, and administrative practices reveals multiple instances that validate the assertion that water administration complexity has increased dramatically over time. For a singular example, the adjudication and administration of surface water rights in Colorado began with territorial government actions in the late nineteenth century. Almost a century later, the General Assembly and the DWR recognized the effect and impacts of increased use of tributary groundwater upon streamflows and surface water rights, and fully integrated groundwater within the water allocation practices in Colorado with the passage of the Water Right Determination and Administration Act of 1969. It is, therefore, the contention of this author that

Colorado Whitewater

Challenges To RICDs

the state of water administration practice in Colorado will continue to be enhanced and grow by working through the difficult and complex challenges that will inevitably arise in the administration of water rights associated with whitewater courses.

Conclusion

The rivers and streams that begin in Colorado's alpine headwaters gain strength and volume as they rush down the mountain slopes and meander through the prairies on both sides of the Continental Divide, providing ample opportunities for an increasing number of whitewater enthusiasts seeking to enjoy the flows. Following the capitalistic principle that demand will be supplied in a free market system, local communities have followed a similar path through construction of whitewater courses in close proximity to capture the economic benefits afforded by the turbulent water features. As the river waters tumble over numerous and seemingly impenetrable obstacles in a natural channel, the adjudication and water administration process for these recreational in-channel diversions suffer a tortuous path through controversy and debate as to the validity or necessity of these water rights. The purpose of this paper is to neither support nor detract from the concept of adjudicating water rights for a whitewater course; rather it is to provide a measure of objective information to other water administration officials and policy-makers contemplating these issues within their own jurisdictions. Similar to the experience of careening through a whitewater course at peak flows, the application of legal concepts and implementation of daily water administration practices to recreational in-channel diversions continues to be an exciting challenge.

For Additional Information: Dr. Ken Knox, Colorado Division of Water Resources, 303/ 866-3581 or email: Ken.Knox@state.co.us

CWCB website: Additional RICD information is available online at: http://cwcb.state.co.us/WaterSupply/RICD.htm

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Editor's Note: Senate Bill 06-037, adopted in 2006 by the Colorado General Assembly, significantly amended the RICD program. The legislation, however, only applies to new applications for RICDs filed on or after the effective date of the Act. The legislature changed one ambiguous standard ("impair"), to require a finding that the RICD would not "materially impair" the ability of Colorado to fully use its compact entitlements. Denial of the application is required if the RICD would "materially impair" that ability (§ 37-92-102, C.R.S.).

The time of use for RICDs is now limited to April 1 through Labor Day unless the "applicant demonstrates that there will be a demand for the reasonable recreation experience on additional days." RICDs are also limited to one specified flow rate for each time period claimed, with each individual time period not shorter than fourteen days (unless the need for a shorter time period is demonstrated). The bill created a presumption that there will not be any material injury to the RICD from *subsequent* appropriations or changes of water rights if the effect on the RICD caused by such appropriations or changes doesn't exceed .1% of the lowest decreed rate of flow for the RICD and the cumulative effects do not exceed 2% of the lowest decreed RICD flow rate. § 37-92-103, C.R.S.

When making a determination of the appropriate flow for any period and whether an RICD is "reasonable," the water court must consider all factors that bear on the reasonableness of the claim, including the "flow needed to accomplish the claimed…use, benefits to the community, the intent of the appropriator, stream size and characteristics, and total streamflow available" during the time periods requested. The water court was also charged with determining the "minimum amount of stream flow" needed for the intended "recreational experience" and must make a finding of the flow rate "below which there is no longer any beneficial use of the water" for the purpose of the right decreed. § 37-92-305, C.R.S.

Volume requirements (total amount of water used per year) must also be specified in the water court's decree. The legislation states that the total volume is computed by taking the "sum of the flow rates claimed in cubic feet per second for each day…multiplied by 1.98." This provides a volume figure in acre-feet. § 37-92-305, C.R.S.

Additional limitations must be decreed for an RICD if the total volume of water decreed for the RICD "exceeds fifty percent of the sum of the total average historical volume of water for the stream segment" (where the RICD is located): for each day on which a claim is made, the decree shall: (1) "specify that the State Engineer shall not administer a call" for the RICD "unless the call would result in at least eighty-five percent of the decreed flow rate for the applicable time period;" (2) limit the RICD to no more than three time periods; and (3) specify that each time period is limited to one flow rate. § 37-92-305, C.R.S.

Wetlands

SUPREME COURT DECIDES WETLANDS CASES
RAPANOS & CARABELL

by Roderick Walston, Best Best & Krieger (Walnut Creek, California)

Fractured Decision

INTRODUCTION

On June 19, 2006, the Supreme Court (Court) issued its much-awaited decision addressing whether the US Army Corps of Engineers has jurisdiction to regulate wetlands. *Rapanos v. United States*; *Carabell v. United States*, 126 S.Ct. 2208 (2006). The case is one of the Court's most important environmental law cases in recent years, and the first environmental case decided by the Court since Chief Justice John Roberts and Justice Samuel Alito took their seats. The decision, for all the anxiety and anticipation it has aroused, failed to definitively resolve the jurisdictional issue before the Court. The decision was a fractured one that left many unanswered questions, and will almost certainly invite more litigation to decide what the Court meant.

NPDES

"Waters of the United States"

CLEAN WATER ACT PROVISIONS

The Clean Water Act (CWA), enacted in 1972, establishes two major permit programs to further the goal of eliminating water pollution. First, the CWA establishes the National Pollutant Discharge Elimination System (NPDES), which prohibits the "discharge of any pollutant" without an NPDES permit. Section 402, 33 U.S.C. §§ 1342, 1311(a). The phrase "discharge of a pollutant" is defined as "any addition of any pollutant to navigable waters from any point source." *Id.* at § 1362(12). Second, the CWA prohibits the discharge of dredged or fill materials into "navigable waters" without a permit issued by the US Army Corps of Engineers (Corps). Section 404, 33 U.S.C. § 1344. Thus, both permit programs apply to "navigable waters" which in turn are defined as "waters of the United States." *Id.* at § 1362(7). The question in *Rapanos* and *Carabell* was whether wetlands are "waters of the United States" and thus subject to the Corps' authority to regulate discharges of dredged and fill materials.

Wetlands Connections

THE *RAPANOS* AND *CARABELL* CASES

In *Rapanos* and *Carabell*, two different developers, both located in Michigan, planned to commercially develop their properties. Both properties were situated on or near wetlands, and both would have substantially affected the wetlands. In *Rapanos*, the wetlands were physically connected to navigable waters, but the connection was remote and tenuous rather than direct and immediate. The wetlands were adjacent to a ditch, which was connected to small canals and streams that emptied into a navigable lake located about 20 miles from the wetlands. In *Carabell*, the wetlands were also adjacent to a ditch, but a berm separated the wetlands from the ditch. Thus, although the ditch eventually emptied into a navigable lake located about one mile away, the wetlands water did not actually reach the navigable lake.

The Corps asserted jurisdiction over the wetlands in both cases under its authority to regulate discharges of dredged and fill materials into "waters of the United States." The federal district courts in both cases upheld the Corps' jurisdiction. The Sixth Circuit Court of Appeals affirmed both district court judgments.

On October 11, 2005, shortly after Chief Justice Roberts took his seat, the Court granted the developers' petitions for writs of certiorari. The Court had earlier rejected several petitions for writs of certiorari filed by developers in other cases raising the same issue. Some have surmised that the Court granted the petitions in *Rapanos* and *Carabell* because of the new Chief Justice's interest in reviewing the issue. In any event, the cases were consolidated for oral argument, which was held on February 21, 2006.

Arguments

During the oral argument, Rapanos argued that the Corps has no jurisdiction over wetlands except those directly adjacent to navigable waters; since his wetlands were not directly adjacent to the navigable lake and were connected to the lake only remotely, the Corps did not have jurisdiction over his wetlands. Carabell argued that the Corps has jurisdiction only over wetlands that are physically connected to navigable waters; since his wetlands were separated from navigable waters by a berm, the wetlands were not connected to navigable waters and the Corps had no jurisdiction over them.

The US Solicitor General argued, on the other hand, that the Corps had jurisdiction over all wetlands that are adjacent or connected to navigable waters. Under his argument, the Corps had jurisdiction over Rapanos' wetlands because they were connected, however remotely, to navigable waters, and had jurisdiction over Carabell's wetlands because they were adjacent to a ditch that is considered a "water of the United States" (even though a berm separated the wetlands from the ditch).

Wetlands

Adjacent Wetlands

"Isolated" Waters

"Significant Nexus"

Split Decisions

Scalia's View

Limited Corps Authority

The Supreme Court's Decisions in *Riverside Bayview* and *SWANCC*

The Supreme Court in *Rapanos* and *Carabell* was not writing on a clean slate. The Court had earlier issued two decisions addressing the scope of the Corps' authority to regulate wetlands and "waters of the United States." In *United States v. Riverside Bayview Homes, Inc.,* 474 U.S. 121 (1985), the Supreme Court ruled that wetlands "adjacent" to navigable waters are "waters of the United States" and thus are subject to the Corps' regulation. The decision, authored by Justice Byron White, stated that the Corps' jurisdiction is not limited to "navigable waters" under the "classical understanding of that term," and instead extends to wetlands that border navigable waters, in part because of the difficulty of determining where the land containing the wetlands ends and the navigable water begins. 474 U.S. at 133. The Court limited it's holding to the Corps' authority to regulate adjacent wetlands, and declined to consider the outer limits of Congress' authority to regulate non-navigable waters under the CWA.

Sixteen years later, the Supreme Court partially answered the question left unanswered in *Riverside Bayview*. In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers,* 531 U.S. 159 (2001) *(SWANCC)*, in a decision written by Chief Justice William Rehnquist, the Court held that ponds wholly "isolated" from navigable waters — that is, not physically connected to navigable waters — are not "waters of the United States" and thus are not subject to the Corps' regulation. The Court struck down the Corps' Migratory Bird Rule, which authorized regulation of all waters inhabited by migratory birds, navigable or not. The Court stated that the phrase "waters of the United States" includes not only navigable waters but also waters that have a "significant nexus" to navigable waters, but that this test is not met with respect to "isolated" waters (531 U.S. at 167). The Court expressed concern that a broader interpretation of the Corps' authority would "impinge" on the traditional authority of state and local governments to regulate water use and land use; Congress would not have expanded its authority to the "outer limits" of federal power unless it did so "clearly." *Id*. at 173. The Court distinguished *Riverside Bayview* on grounds that the wetlands in that case were "adjacent" to and "actually abutted" navigable waters and, therefore, were not "isolated." *Id*. at 167. Because of its constitutional concerns about the Corps' authority to regulate waters traditionally regulated by state and local governments, the Court declined to grant deference to the Corps' regulation under *Chevron U.S.A. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837 (1984). 531 U.S. at 172.

Thus, after *Riverside Bayview* and *SWANCC,* the Corps had authority to regulate wetlands "adjacent" to navigable waters but not wetlands wholly "isolated" from such waters. This raised the question of the Corps' authority to regulate wetlands falling between these extremes, that is, those that are connected to navigable waters but are neither directly "adjacent" to nor "isolated" from them. The Corps' authority to regulate these in-between wetlands, which include many if not most of the nation's wetlands, was the subject of the *Rapanos* and *Carabell* litigation.

THE SUPREME COURT'S *RAPANOS* AND *CARABELL* SPLIT DECISIONS

The Supreme Court in *Rapanos* and *Carabell* issued three main opinions, none commanding a majority of the justices. Justice Antonin Scalia wrote a plurality opinion signed by four justices that substantially limited the Corps' authority to regulate wetlands, and Justice John Paul Stevens wrote a dissenting opinion signed by four justices that would have broadly upheld the Corps' authority to regulate wetlands. Justice Anthony Kennedy wrote a solitary concurring opinion that took a middle ground position, which is the Court's controlling opinion.

Scalia Plurality Opinion

Justice Scalia's plurality opinion, also signed by Chief Justice Roberts and Justices Thomas and Alito, argued that the term "the waters of the United States" as used in the CWA "does not refer to water in general." Instead, "the waters," according to its plain meaning and as defined in Webster's Dictionary, refers to "those relatively permanent, standing or continuously flowing bodies of water 'forming geographic features' that are described in ordinary parlance as 'streams, … oceans, rivers, and lakes.'" "All of these terms connote continuously present, fixed bodies of water, as opposed to ordinarily dry channels through which water occasionally or intermittently flows." The term does not include channels through which water "flows intermittently or ephemerally, or channels that periodically provide drainage for rainfall." Under the Scalia view, the CWA applies primarily to identifiable and continuously flowing waters formed by distinct geographical features, like rivers and lakes. The opinion criticized the Corps' assertion of jurisdiction over "ephemeral streams, wet meadows, storm sewers or culverts, sheet flow during storm events, drain tiles, man-made drainage ditches, and dry arroyos in the middle of the desert," stating that "the Corps has stretched the term 'waters of the United States' beyond parody."

The only wetlands subject to Corps regulation, the Scalia opinion argued, are those with a "continuous surface connection to bodies that are 'waters of the United States' in their own right, so that

Wetlands

State/Local Power

Corps' Interpretation

Controling Opinion

Definitions

Case-by-Case

Flow Impacts

"Navigable" Anchor

Reliable Standard

there is no clear demarcation between 'waters' and wetlands." Since wetlands with "only an intermittent, physically remote hydrologic connection to 'waters of the United States' do not implicate the boundary-drawing problem…" such wetlands are not subject to federal jurisdiction.

The Scalia opinion argued that its position was supported by Constitutional and federalism principles, stating that the Corps' interpretation of its authority "stretches the outer limits of Congress's commerce power and raises difficult questions about the ultimate scope of that power." It is not clear, the opinion stated, that state and local governments are unable to adequately regulate wetlands and preserve them. The plurality opinion concluded that the lower courts had applied the incorrect standard and that the cases had to be remanded to the lower courts so they could apply the correct standard.

Stevens Dissenting Opinion

Justice Stevens' dissenting opinion, also signed by Justices Souter, Ginsburg and Breyer, argued that the term "waters of the United States" as used in the CWA is ambiguous, and therefore that the Court should have deferred to the Corps' application of its regulations under the "*Chevron* doctrine" (doctrine which holds that federal courts should defer to federal agencies' interpretation of ambiguous statutes). *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 842-845 (1984). The opinion also argued that the Court had previously upheld the Corps' jurisdiction to regulate adjacent wetlands in *Riverside Bayview*, and, that since the instant case involved adjacent wetlands, *Riverside Bayview* was controlling. The *SWANCC* decision was not controlling, the dissenting opinion argued, because that case did not involve wetlands, and in any event the ponds in that case were "isolated" and thus not connected to navigable waters. The dissenting opinion argued that the decisions of the lower courts should have been affirmed.

Kennedy Concurring Opinion: "Significant Nexus"

Justice Kennedy's concurring opinion, citing *SWANCC*, stated that the term "waters of the United States" includes not only navigable waters, but also non-navigable waters, including wetlands, that have a "significant nexus" to navigable waters. This "significant nexus" exists, Kennedy wrote, if the wetlands, "either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'" Conversely, a "significant nexus" does not exist if the wetlands' effects on water quality are "speculative or insubstantial." Kennedy also stated that wetlands may be subject to regulation if they perform critical functions relating to the integrity of waters, such as by trapping pollutants, controlling floods or storing runoff. Whether the wetlands meet the "significant nexus" test, Kennedy stated, must be determined on a "case-by-case basis." This result, Kennedy argued, comports with Constitutional and federalism principles because it authorizes federal regulation only of waters that have a "significant nexus" to navigable waters traditionally subject to federal jurisdiction. The "end result," Kennedy stated, is that the Corps may have jurisdiction to regulate the wetlands in *Rapanos* and *Carabell*.

Justice Kennedy rejected the analyses in both the Scalia and Stevens opinions, stating that neither properly applied the "significant nexus" test. Kennedy rejected the Scalia analysis because, he said, it improperly assumed that the regularity or continuity of water flows determined the impacts of the flow on navigable waters; on the contrary, he wrote, episodic torrential flows may have greater impacts than continuous minor ones. Kennedy also argued that the Scalia opinion improperly assumed that non-adjacent wetlands cannot significantly affect navigable waters; on the contrary, non-adjacent wetlands may have "significant effects on water quality and the aquatic ecosystem."

Justice Kennedy rejected the Stevens analysis because it appeared to disregard the word "navigable" as the anchor of the term "waters of the United States." Citing *SWANCC*, Kennedy stated, "the word 'navigable' in the Act must be given some effect." Justice Kennedy stated that the Corps' regulations are overbroad, because they "leave wide room for regulation of drains, ditches, and streams remote from any navigable-in-fact water and carrying only minor water-volumes towards it," and thus do not provide a reliable standard for measuring "whether adjacent wetlands are likely to play an important role in the integrity of an aquatic system comprising navigable waters as traditionally understood." Therefore, Kennedy agreed with Scalia that the case had to be remanded to the lower courts so they could apply the right standard — although Kennedy's standard was different from Scalia's.

Justice Kennedy's concurring opinion is the controlling one because he would join with the four dissenting justices in upholding the Corps' regulation of wetlands in cases where his "significant nexus" test is met, and would join with the four plurality justices in striking down Corps' regulation in cases where his test is not met. Justice Kennedy's concurring opinion is reminiscent of Justice Lewis Powell's concurring opinion in *Regents of University of California v. Bakke*, 438 U.S. 265 (1978), where eight justices evenly split on whether affirmative action programs were constitutional and Justice Powell's concurring opinion adopting a fact-specific approach became the operative one.

Wetlands

Murkiness

Effects Focus

Thus, while the eight other justices adopted bright line rules — but conflicting ones — measuring the Corps' authority to regulate wetlands, Justice Kennedy adopted a murky rule that requires "case-by-case" analysis of whether specific wetlands significantly affect the "chemical, physical, and biological integrity" of the waters. Although the other opinions focused on the nature and characteristics of the regulated waters, Kennedy focused on the *effect* of the regulated water on navigable waters and the surrounding aquatic system. Under the Kennedy opinion, the Corps apparently has authority to regulate wetlands and other waters that flow only intermittently, but does not have authority to regulate such waters simply because they are connected, however remotely, to navigable waters. Thus, the Kennedy opinion rejected part of the Solicitor General's argument, and upheld other parts. Since the Kennedy opinion is controlling, the *Rapanos* and *Carabell* decision will likely spawn more litigation as future courts attempt to apply the Kennedy standard to individual cases.

POSSIBLE FUTURE RULEMAKING BY ARMY CORPS OF ENGINEERS

Rulemaking Inevitable

The *Rapanos* and *Carabell* decision likely will require the Corps to undertake new rulemaking efforts to define "waters of the United States." Since a majority of the Supreme Court, including Justice Kennedy, has concluded that the Corps' current regulations are overbroad, the Corps will have to adopt new regulations to conform to the Court's decision — particularly the Kennedy opinion — and in any event will be unable to fully enforce its regulations in their current form. Chief Justice Roberts penned a short concurring opinion in *Rapanos* criticizing the Corps for its failure to adopt a clarifying regulation, stating that this litigation would not have occurred if the Corps had earlier adopted such a regulation. Justice Breyer wrote a short dissenting opinion observing that the Corps now has the opportunity to write a regulation defining "waters of the United States," and urging that the Corps do so "speedily." Since the Court has urged the Corps to adopt a regulation to resolve the problem, the Corps will almost certainty try to do so.

Original Rules

1997 Changes

The Corps' original regulations, adopted shortly after the CWA was passed in 1972, defined "waters of the United States" as those falling within the Corps' traditional jurisdiction to regulate navigable waters. 33 C.F.R. § 209.120(d)(1)(1974); *SWANCC*, 531 U.S. at 168. The original regulations provided that "[i]t is the water body's capability of use by the public for purposes of transportation or commerce which is the determinative factor." *Id*. In 1977, in response to a court decision holding that the Corps had interpreted its jurisdiction too narrowly, the Corps amended its regulations to substantially broaden the term "waters of the United States." Under the amended regulations, the term includes not only traditionally navigable waters but also "all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, intrastate lakes, rivers, streams (including intermittent streams)." 33 C.F.R. § 328.3(a). The term also includes "tributaries" of "waters of the United States," as well as "adjacent wetlands." *Id*. Thus, wetlands are defined as "waters of the United States," and also are subject to regulation if they are "adjacent" to "waters of the United States" — which presumably might be another wetlands.

All Waters of the US

Assuming that the Corps undertakes future rulemaking in light of *Rapanos* and *Carabell*, the Corps will likely focus on all "waters of the United States," and not just wetlands. Although *Rapanos* and *Carabell* involved regulation of wetlands, the Court undertook to define the Corps' broader authority to regulate "waters of the United States," since wetlands are only one subset — although an important and visible one — of "waters of the United States." Thus, the Corps' proposed rulemaking will likely focus on other types of non-navigable waters, such as tributaries of navigable rivers, dry washes in the desert, intermittently-flowing streams, ditches and canals that connect to navigable waters, ephemeral waters, playa lakes, and other types of non-navigable waters.

Past Definition Problems

The Corps' past efforts to conduct rulemaking to define the term "waters of the United States" have been unsuccessful. After *SWANCC*, the Corps and the US Environmental Protection Agency (EPA) undertook a rulemaking effort to define the term but subsequently abandoned the effort. During this abortive rulemaking attempt, the Corps apparently attempted to define jurisdictional "wetlands" as only those that provide "regular and continuous flow of surface water" to waters of the United States, and "tributaries" as only those that "contribute regular and recurrent flow to traditional navigable waters of the United States." Thus, the Corps and EPA apparently took a cautious approach in attempting to define the Corps' jurisdiction in the wake of *SWANCC*. These agencies may find it even more difficult to define these terms after *Rapanos* and *Carabell*, in light of the Court's inability to reach a majority decision and the indefinite quality of Justice Kennedy's "significant nexus" standard. Nonetheless, there is greater pressure on the Corps and EPA than before to conduct further rulemaking, because a Court majority in *Rapanos* and *Carabell* held that the regulations are overbroad and several justices expressly urged the Corps to adopt new regulations.

Wetlands

Navigable Waters

FEDERALISM ISSUES

One of the major subtexts of the *Rapanos* and *Carabell* decision, although not fully articulated, involves the balance between, on the one hand, the Corps' recently-delegated authority to regulate water in order to eliminate pollution, and, on the other, the traditional authority of state and local governments to regulate water and land use where significant national interests are not at stake. As noted, the CWA authorizes the Corps to exercise jurisdiction over "navigable waters," which are broadly defined as "waters of the United States." The CWA, by anchoring the Corps' jurisdiction to "navigable waters," recognized that the federal government has authority to regulate navigable waters under its Constitutional powers to regulate interstate commerce; navigable waters are considered one of the "natural highways" of interstate commerce. *United States v. Rio Grande Dam & Irrig. Co.*, 174 U.S. 690, 703 (1899). Accordingly, the federal government has a "navigation servitude" in navigable waters, which authorizes federal regulation of such waters notwithstanding that private users may have acquired rights under state laws authorizing the use of such waters. *Kaiser Aetna v. United States*, 444 U.S. 164 (1979). On the other hand, state and local governments traditionally regulate non-navigable waters where significant federal interests are not at stake. The authority of state and local governments to regulate non-navigable waters is virtually "plenary" (i.e., absolute). *California Oregon Power Co. v. Beaver Portland Cement Co.*, 295 U.S. 142, 163-164 (1935).

Scope Broadened

As the nation's industry expanded and its commerce developed, the Supreme Court substantially broadened the federal government's power to regulate navigable waters, holding that the power extends to tributaries and other waters that are not navigable but that substantially affect interstate commerce in navigable waters. *E.G., Oklahoma v. Guy F. Atkinson Co.*, 313 U.S. 508 (1941). This may explain why Congress defined "navigable waters" in the CWA as "waters of the United States," that is, as including waters that may not be strictly navigable but that nonetheless may implicate significant federal interests in navigable waters. Indeed, the Supreme Court in *SWANCC* stated that the CWA was intended to assert the federal government's "traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made," thus making clear that federal jurisdiction is linked to navigability of water but that navigability *per se* does not precisely determine the contours of federal jurisdiction. 531 U.S. at 172. The Court in *SWANCC* observed that "navigability" is still the anchor of federal jurisdiction: "it is one thing to give a word [navigable] limited effect and quite another to give it no effect whatever." *Id.*

Justice Kennedy's concurring opinion similarly observed that federal jurisdiction is anchored to the federal navigation power. Citing *SWANCC*, he stated that federal jurisdiction extends to waters that have a "significant nexus" to navigable waters, and rejected the Stevens analysis on grounds that it virtually read the "navigable waters" limitation out of the CWA. "The word 'navigable' in the Act," Kennedy wrote, "must be given some effect."

National Interests

Thus, while the Supreme Court in *Riverside Bayview, SWANCC, Rapanos* and *Carabell* has upheld to a significant degree the Corps' authority to regulate wetlands and other non-navigable waters, the latter three decisions held by bare majorities that federal jurisdiction applies only where the regulated waters have a significant relationship to navigable waters, and thus that considerations of navigability are relevant in determining the extent of federal jurisdiction. Although some have criticized the Court for disregarding principles of federalism by recognizing broad federal authority to regulate non-navigable waters, the Court has substantially adhered to these principles by limiting federal jurisdiction in order to preserve traditional state and local authority to regulate local water uses having no discernible connection to national interests. The *Rapanos* and *Carabell* decision, on balance, appears to preserve rather than depart from the traditional balance of federal and state power to regulate water.

Congressional Options

Conceivably, Congress may overturn or at least limit the *Rapanos* and *Carabell* decision by amending the CWA to authorize the Corps to regulate most if not virtually all wetlands in the nation. If Congress takes this action, this may potentially raise questions concerning whether Congress has exceeded its powers under the Constitution's Commerce Clause to regulate interstate commerce. The *Rapanos* and *Carabell* decision did not suggest any Constitutional limitations on Congress' power to regulate wetlands and other non-navigable waters, although the Constitutional question was presented to the Court. In the *SWANCC* case, however, the Court stated that if Congress had authorized the Corps to regulate wetlands having no "significant nexus" to navigable waters that would potentially raise constitutional issues because it would result in a "significant impingement" on the traditional authority of state and local governments to regulate non-navigable waters. The *SWANCC* Court stated that Congress would not have exercised the "outer limits" of its authority without a "clear" expression of its intent. The Court cited its earlier decisions holding that Congress had exceeded its commerce powers by enacting legislation that unduly intruded into areas traditionally regulated by the states. *United States v. Lopez*, 514

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U.S. 549 (1995) (invalidating congressional enactment regulating gun possession near schools); *United States v. Morrison*, 529 U.S. 598 (2000) (invalidating congressional enactment providing federal judicial remedy for acts of violence against women). Thus, *SWANCC* at least, appears to suggest that Constitutional questions might arise if Congress authorizes the Corps to regulate wetlands and other non-navigable waters having no significant relationship to navigable waters. It remains to be seen whether Congress will grant such authority to the Corps, and if so, whether the Supreme Court will uphold the grant of authority as a valid exercise of Congress' commerce powers.

CONCLUSION

The Supreme Court's decision in *Rapanos* and *Carabell* failed to definitely resolve the precise circumstances of the Corps' jurisdiction to regulate "waters of the United States," including wetlands. Since Justice Kennedy's concurring opinion, which is controlling, requires a case-by-case analysis of whether wetlands have a "significant nexus" to navigable waters, the Court's decision will likely result in future litigation to resolve the meaning of the term "waters of the United States." In the meantime, the Corps likely will conduct a rulemaking effort to clarify the meaning of this term in light of the Supreme Court's decision. Thus, although the Supreme Court decision failed to definitively resolve the jurisdictional issue, it substantially clarified the issue and paved the way to achieve more clarity through a future rulemaking process.

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Water Conservation Programs

Elusive Quest

True Costs

New Tool

Objectives

MUNICIPAL WATER CONSERVATION

COST BENEFIT ANALYSIS & COMPARISON

by Val L. Little, Principal Investigator and Rebecca Gallup, Research Specialist
Water Conservation Alliance of Southern Arizona

INTRODUCTION

Determining the actual cost of conservation measures being instituted by many municipal water utilities is an issue of growing importance. Water providers will find that saving the next increment of water is going to be an increasingly elusive quest, requiring greater expenditures. The likelihood of continued scarcity of dollars for water conservation efforts necessitates greater rigor in determining the most efficient use of those dollars.

With a few exceptions, after-the-fact assessments of actual water savings from conservation measures are rarely done. What is available in the way of quantifiable information about water savings and relative costs generally consists of estimates used to justify implementing the conservation program in the first place. The focus of the water-saving potential of a particular strategy often ignores the true costs that water providers incur when adopting the strategies.

A study titled "*Evaluation and Cost Benefit Analysis of Municipal Water Conservation Programs*" (ECoBA) was recently completed by the Water Conservation Alliance of Southern Arizona (Water CASA—a consortium of Tucson area water suppliers) and the US Bureau of Reclamation. The purpose of the ECoBA study was to help water managers get the biggest water-saving bang for the buck by determining the actual water savings of various conservation strategies and the comparable direct costs incurred to achieve those savings. The study was intended to serve as a decision-making tool, providing the accurate and detailed information needed to make informed decisions on suitable water conservation program choices.

ECoBA Project Objectives:

- To evaluate *actual* water conservation programs, comparing water use data within measures as well as between measures
- To provide a thorough analysis of conservation measures that have been, or are currently being implemented, to ascertain the actual water savings, and the direct comparable costs and benefits
- To ultimately increase the amount of water saved per staff hour and dollars expended on demand management efforts

Conservation Programs

STUDY SCOPE, METHODOLOGY & LIMITATIONS

The project analyzed 88 separate cases (a case being defined as one year of one program) from 42 different programs offered by 30 utilities. These programs operated between 1994 and 2003. Participating utilities varied greatly in size, from 1.5 million customers to 13,500. Participants' water-use data covered two calendar years prior to their participation in the program (pre-measure) and two calendar years after their participation (post-measure). [**Please Note:** The ECoBA study included the analysis of a single water ordinance, a few water surcharge programs, and one water conservation class. Data from these sparse samplings, as well as data from one atypical utility, have been excluded or included in this overview's summary statements in a manner deemed appropriate to their relevance.]

Actual Savings

Actual water savings from a particular conservation measure were computed using both pre-measure and post-measure water-use data, and participant and control groups' water-use data. Mean water use was then calculated for the pre-measure and post-measure of both groups. Water savings were determined as the difference in the percent increase (or decrease) of an average control group and participant water use from pre-measure to post-measure.

Excluded Data

Costs or benefits accruing over time were projected into the future; one-time costs or benefits were not. Water savings and benefit data were extrapolated according to the estimated life span of the measure. In order to make comparison of analyses more valid, only direct costs and benefits that could be quantified for all programs were included. Therefore, there are costs and benefits that could have been quantified, but were not. Most notably, savings to the participant on sewer bills and savings to the utility in avoided costs of supply are not included. These and other, more intangible, costs and benefits are listed at the end of each case narrative in the study. Often, the unquantified benefits outweigh the unquantified costs, resulting in an understatement of the net benefit of the programs.

The results of each analysis are unique to the situation of the utility, and are not meant to be used as an exact predictor of savings or costs, but rather as a general guide. Costs and benefits (and the resulting economic analyses) are especially prone to variations from program to program. In addition to setting a comparative "net present value" for each program, the study divided the cost of each program by the amount of water saved by each program to determine the different costs per **a**cre-**f**oot (AF) of saved water.

Net Present Value

For this study, the net present value was arrived at by taking all of the quantified costs and subtracting all of the quantified benefits of a program. These costs included: rebate costs; costs of administering the programs; cost of buying toilets or washing machines, etc. Benefits included receiving rebates and savings on water bills. These calculations did not include all of the cost or all of the benefits of each program. In particular, many of the *benefits* of these programs were difficult to quantify and were not quantified for the study. These values are therefore underestimated. It is beneficial to view the study's net present value determinations not so much as absolute values, but rather as helpful indicators when comparing one program to another, as the values were derived with the same methodology across the board.

NOTABLE FINDINGS

Actual Costs v. Predictions

- TOILET DISTRIBUTION programs exhibited 228% of what was predicted in water savings
- TOILET REBATE programs exhibited only 63% of the predicted water savings

Water Usage Correlations

- AUDIT programs and WASHING MACHINE programs attracted water users with a significantly higher rate of water use than is typical
- LANDSCAPE CONVERSION programs attracted water users with a significantly lower rate of water use than is typical

Range of Savings

- WASHING MACHINE REBATE programs exhibited the greatest variation in range of savings
- TOILET DISTRIBUTION programs exhibited the second greatest variation in range of savings

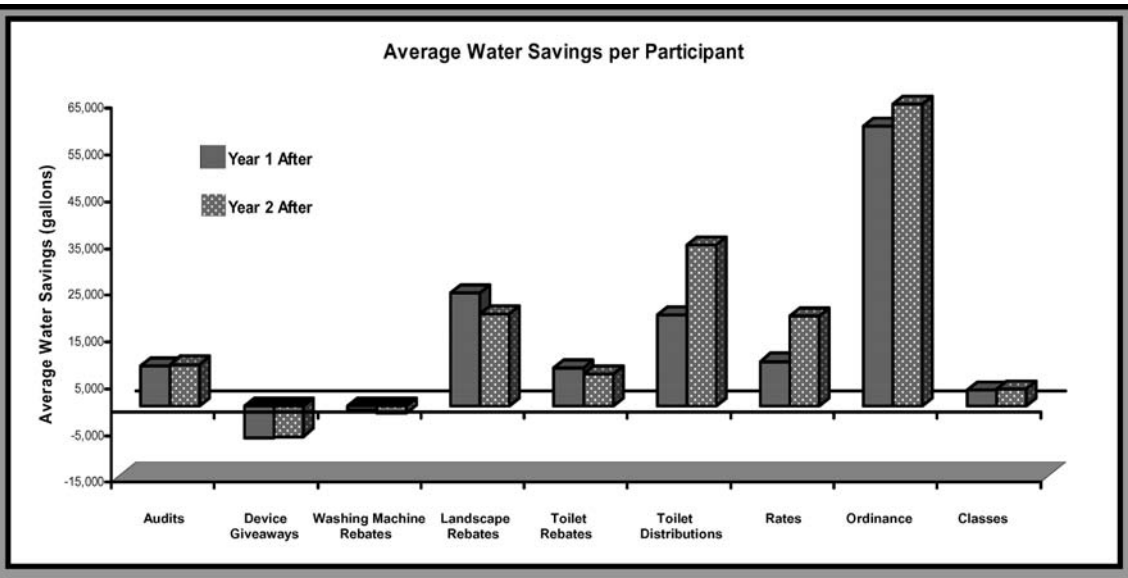
Water Savings Per Participant

- TOILET DISTRIBUTION programs exhibited the greatest savings per participant (27,000 gallons annually)
- LANDSCAPE CONVERSION programs exhibited the second greatest savings per participant (22,000 gallons annually)

Persistence in Savings

- TOILET DISTRIBUTION programs exhibited the greatest persistence in savings from the first year to the second year following distribution, saving 77% more water per participant the second year after the program compared with year one

Conservation Programs



OFF THE CHART: This chart does not include the surcharge program, the only non-residential program analyzed. Please see OTHER FINDINGS for program details.

Cost/AF

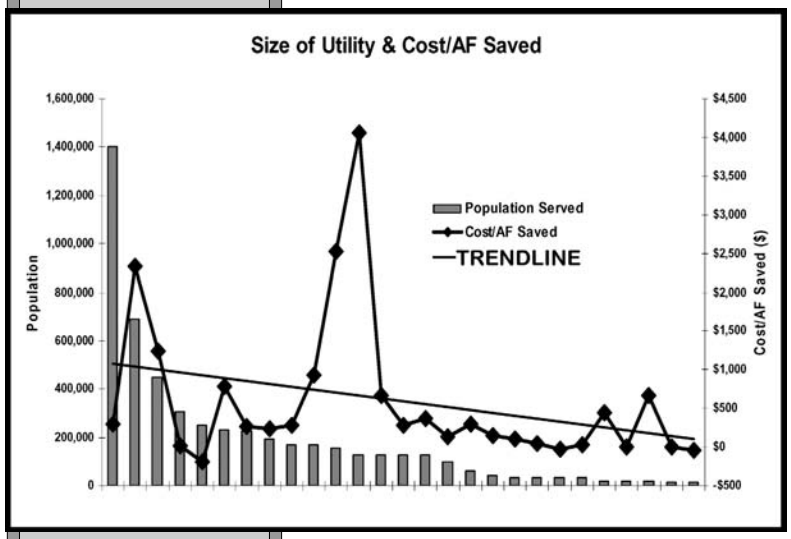
Cost Per Saved AF

- TOILET DISTRIBUTIONS exhibited the lowest cost to save an AF of water ($181)
- AUDITS exhibited the highest costs to save an AF of water ($1,284)
- LANDSCAPE CONVERSION REBATES had the second highest costs to save an AF of water ($1,099)

Utility Costs

Utility Costs Per Participant

- LANDSCAPE CONVERSIONS exhibited the highest costs to the Utility and Other Funders ($650) per participant, followed by: TOILET DISTRIBUTIONS ($330); TOILET REBATES ($151); WASHING MACHINE programs ($144); AUDITS ($116); and DEVICE GIVE-AWAYS ($4)



UTILITY SIZE & COST PER AF OF WATER SAVED

In analyzing the data we discerned what appeared to be a trend indicating that larger utilities have higher costs associated with saving an AF of water. Two possible factors creating this trend come to mind: 1) larger utilities will tend to have more bureaucratic factors at play in their overall management (e.g., entrenchment, higher overhead costs, resistance to change, etc); and 2) large utilities tend to be the utilities that have lead the way in water conservation over the past several decades and — having achieved all the easy, cheap savings already — are now at work on more costly efforts to realize that next increment of water savings.

Negative Figures

RANGE & AVERAGE WATER SAVINGS

Some analyses showed "negative" water savings, where control group water use decreased more (or increased less) than participant water use. Some analyses show a "negative" cost per AF of water saved. Though awkward in its presentation, this indicates that the utility incurred costs related to the program and that there were no water savings attributable to those costs (i.e., an increase in participant water use occurred, relative to the control groups' water use).

AUDIT PROGRAMS: For audit programs, water savings per participant varied from 36,490 gallons to -4,152 gallons for the eight cases we examined. The average water savings were 8,690 gallons (5%).

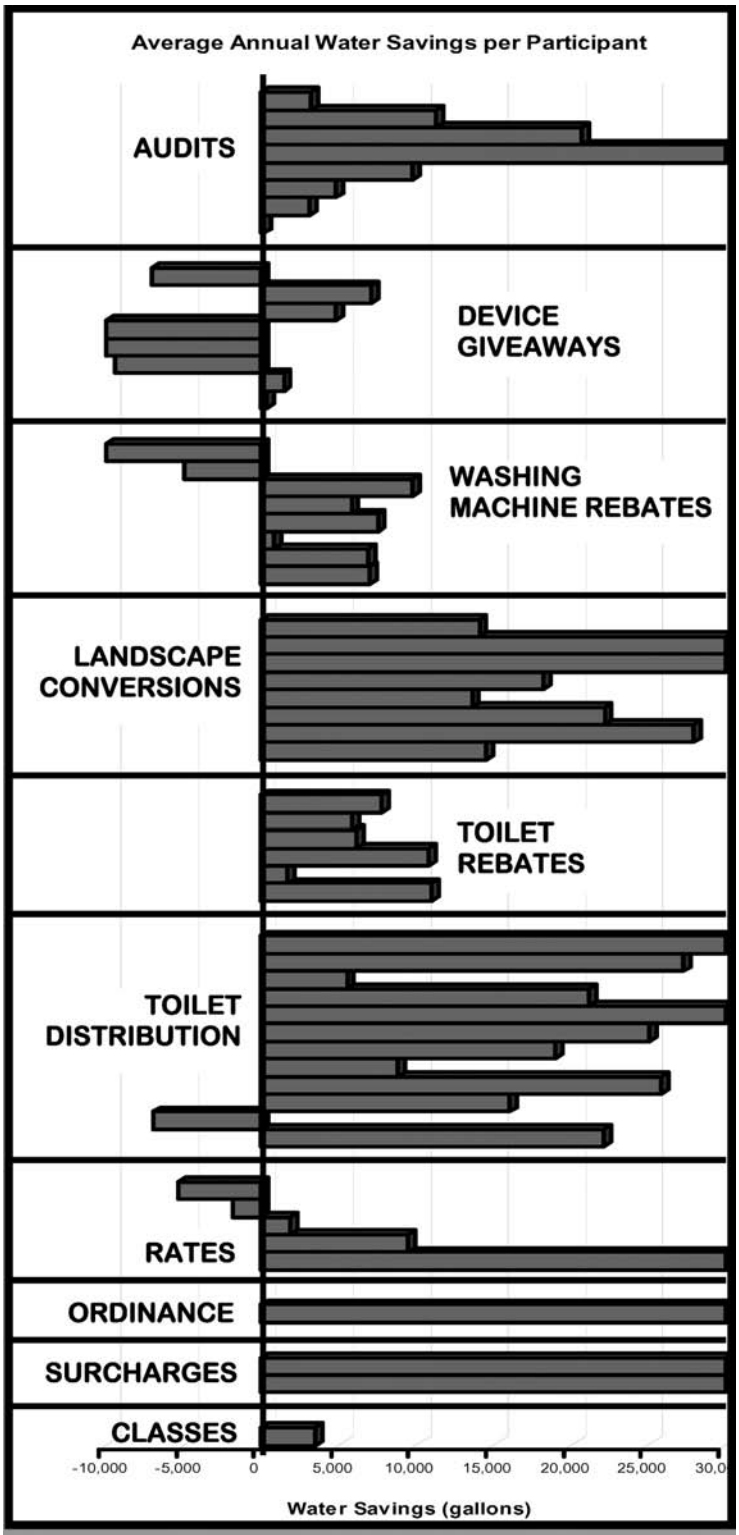
DEVICE GIVE-AWAY PROGRAMS: Water savings for these programs varied from 9,229 gallons per participant per year to -14,341 gallons per participant. The average annual water savings for these programs were -6,692 gallons, a saving of -4.7%.

Conservation Programs

WASHING MACHINE REBATE PROGRAMS: These programs exhibited a range of savings per participant per year from 11,242 gallons to 7,941 gallons, and the average water savings was 3,176 gallons (2%).

LANDSCAPE CONVERSION REBATE PROGRAMS: For these programs water savings per participant per year ranged from 11,387 gallons to 39,665 gallons per participant. The average water savings per participant was 21,897 gallons, or 11.6%

TOILET REBATE PROGRAMS: Water savings for customers taking advantage of toilet rebate programs varied from 12,504 gallons to -760 gallons per participant per year. The average water savings per participant were 7,440 gallons, a saving of 6.7%.



OFF THE CHART: Several values exceed the 30,000 gallon mark shown above.

TOILET DISTRIBUTION PROGRAMS: These programs exhibited a range of water savings per participant of 89,116 gallons to -11,078 gallons per participant per year. The average savings per participant were 26,890 gallons, a saving of 15.1%.

RATE CHANGE PROGRAMS: These programs resulted in a range of water savings per participant of 52,188 gallons to -6,394 gallons per participant per year. The average savings per participant were 14,335 gallons, a saving of 4.8%.

AN ORDINANCE PROGRAM exhibited average savings per participant per year of 62,208 gallons (30.5%).

A SURCHARGE PROGRAM exhibited an average saving per participant per year of 241,157 gallons (12.5%).

A CONSERVATION CLASS exhibited average savings per participant per year of 3,524 gallons (2.7%).

PERSISTENCE OF SAVINGS

AUDIT PROGRAMS: In the first year following the audits the average water savings per participant was 8,543 gallons. Year two following the AUDITS exhibited a saving per participant of 8,838 gallons. This is a 3.5% increase in water savings from year-one to year-two.

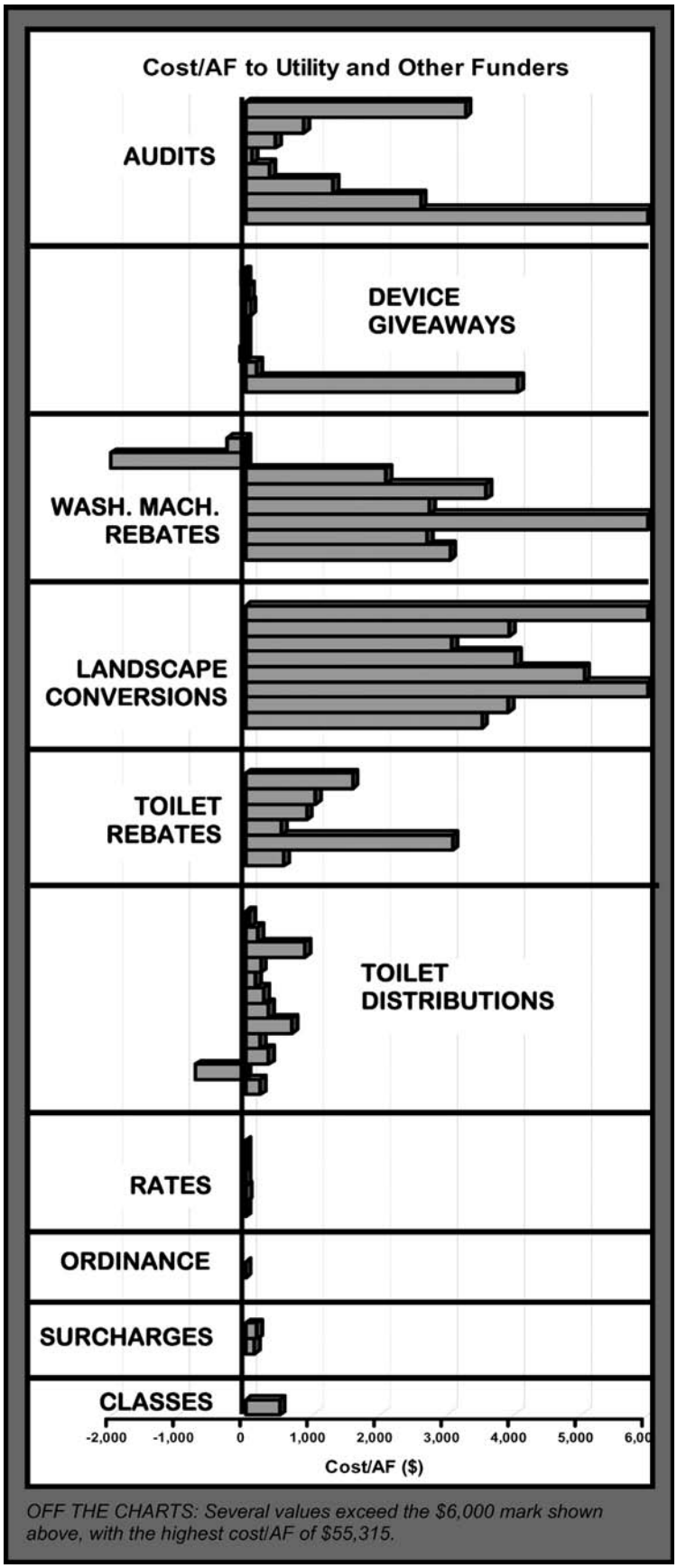
DEVICE GIVE-AWAY PROGRAMS: No water savings were documented for these programs. There was an average savings of -6,846 gallons per participant (increase in water use) the first year following the program and -6,538 gallons the second year following. This is a 4.5% increase in water savings from year one to year two.

WASHING MACHINE REBATE PROGRAMS: Customers who participated in these programs saved an average of 2,823 gallons the first

Conservation Programs

year and 3,529 gallons the second year after the rebate (excluding data from one atypical utility). This is an increase in water savings of 25.0% from year one to year two.

LANDSCAPE CONVERSION REBATE PROGRAMS: These realized an average water savings per household of 24,121 gallons the first year following the conversion to a low water-use landscape and an average savings of 19,673 gallons for year two (18.4% fall off).



TOILET REBATE PROGRAMS: These programs exhibited average water savings per participant of 8,063 gallons the first year after the incentive was received, and a savings of 6,816 gallons the second year after the incentive. This is a decrease in water savings of 15.5% from year one to year two.

TOILET DISTRIBUTION PROGRAMS: Average water savings for these programs varied markedly from the toilet rebate programs' water savings. The first year following the distributions, average water savings per participant was 19,403 gallons and the second year following, the average savings was 34,377 gallons. This is a 77% increase in water savings from year one to year two.

RATE CASE PROGRAMS: These programs exhibited water savings of 9,518 gallons per participant the first year after and 19,151 gallons per participant the second year after the program. This is a 102.3% increase in water savings from year one to year two.

AN ORDINANCE PROGRAM: The water savings shown with this program was 59,854 gallons per participant the first year after and 64,562 gallons per participant the second year. This is a 7.9% increase in water savings from year one to year two after the program.

A SURCHARGE PROGRAM: This program exhibited water savings of 303,210 gallons per participant the first year and 179,104 gallons per participant the second year after the program—a 41.0% decrease in water savings from year one.

A CONSERVATION CLASS exhibited water savings of 3,442 gallons per participant the first year after and 3,606 gallons the second year. This is a 4.8% increase from year one to year two.

Conservation Programs

Saving Costs Per AF

ECONOMIC ANALYSIS: RANGE, AVERAGE & MEDIAN COST PER AF

AUDIT PROGRAMS: The costs to the utility to save an AF of water using audits ranged between $101 and $3,276 The average cost to save an AF of water was $1,284. The median cost per AF of savings was $873. (These figures exclude data from one atypical utility.)

DEVICE GIVE-AWAY PROGRAMS: These programs exhibited a wide range of costs to save an AF of water — from a -$57 to $4,059. While inexpensive to fund, they often resulted in water savings too small to impact the cost/AF of savings. The average cost to save an AF of water was $457, with a median cost of -$3.

WASHING MACHINE REBATE PROGRAMS: The range of costs per AF for these programs was -$184 to $2,519. The average cost per AF saved was $404, and the median was $7.

LANDSCAPE CONVERSION REBATE PROGRAMS: Utilities spent between $236 and $3,338 to save an AF of water with these programs. Their average cost to save an AF was $1,099, and the median cost per AF among the programs studied was $942.

TOILET REBATE PROGRAMS: These programs proved to have the tightest ranges of costs, ranging between $155 to $926 to save an AF of water. The average cost to save an AF of water was $436, with a median cost of $297.

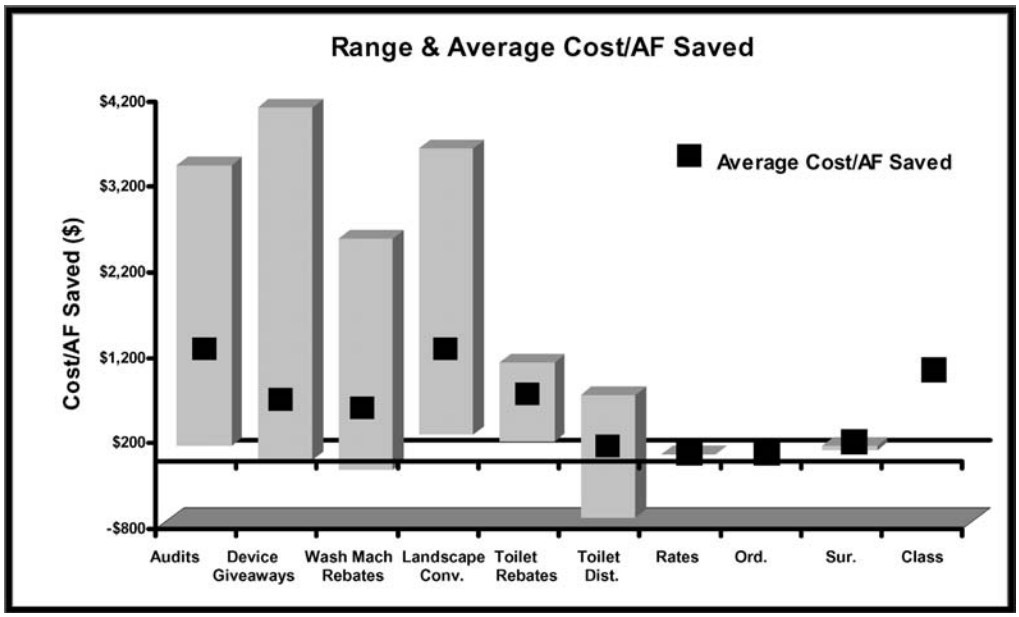
TOILET DISTRIBUTION PROGRAMS: These programs had a range of costs to save an AF of water between -$742 and $695. The average cost per AF saved was $181. The median of the costs was $223.

RATE CASE PROGRAMS: These programs had a range of costs to save an AF of water between -$22 and $6. The average cost per AF saved was -$3 and the median of the costs was $0.

AN ORDINANCE PROGRAM: The utility spent $2 to save an AF of water with this program.

A SURCHARGE PROGRAM: This program had a range of costs to save an AF of water between $46 and $59. Both the average and median cost per AF saved was $53.

A CONSERVATION CLASS: The utility spent $513 to save an AF of water.



Utility Costs

COST TO THE UTILITY PER PARTICIPANT

AUDIT PROGRAMS: These programs cost the utilities studied an average of $116 per participant. There were no outside funders for any of the programs in the study.

DEVICE GIVE-AWAY PROGRAMS: Utilities spent an average of $5 per participant, with additional funding from other sources averaging $2, for a total cost of $7 for all funding.

WASHING MACHINE REBATE PROGRAMS: These programs had an average cost to the utilities of $54 per participant. Several of the utilities had outside funders to augment these programs and their costs averaged $91 per participant (overall costs from all funders were $144).

LANDSCAPE CONVERSION REBATE PROGRAMS: The cost per participant for these programs averaged $650, and there were no outside funders for any of these incentive programs.

TOILET REBATE PROGRAMS: There were no outside funders for any of the programs examined and the average cost to the utilities was $151 per participant.

TOILET DISTRIBUTION PROGRAMS: These programs cost the utility on average $291 per participant. A couple of the programs studied had some outside funding support that averaged $39 per participant.

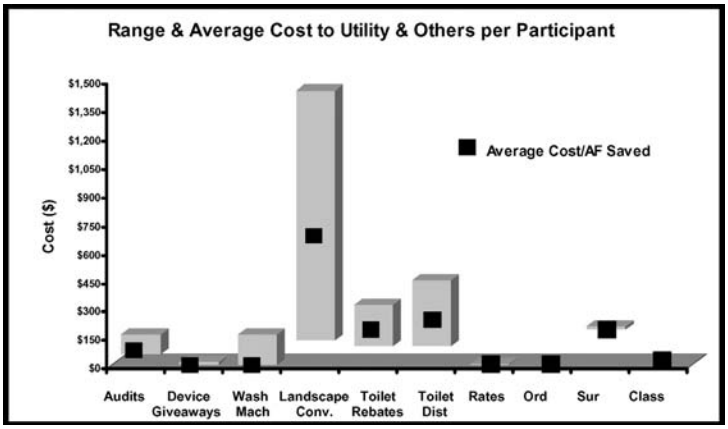
Conservation Programs

RATE CASE PROGRAMS: There were no outside funders for any of the programs examined and the average cost to the utilities was $0.82 per participant (per connection).

AN ORDINANCE PROGRAM: The cost per participant for this program was $4 with no outside funders.

A SURCHARGE PROGRAM: There were no outside funders for this program and the cost to the utility averaged $193 per participant.

A CONSERVATION CLASS: The cost to the utility was $28 per participant with no outside funders.



User Costs

COST TO PARTICIPANTS

There were no quantified costs to the participants of the AUDIT, DEVICE GIVE-AWAY, RATES or CONSERVATION CLASS programs.

WASHING MACHINE REBATE PROGRAMS: The cost to participants ranged from $616 to $630 per participant to buy the washing machines.

LANDSCAPE CONVERSION REBATE PROGRAMS: The cost to participants to get their new landscapes established ranged from $1,181 to $5,258 per participant. The average cost to the participants was $2,401 per participant, and the median cost per participant was $2,051.

TOILET REBATE PROGRAMS: The cost to participants to buy the toilets and have them installed ranged from $193 to $444 per participant. The average cost was $270 per participant, and the median cost was $248.

TOILET DISTRIBUTION PROGRAMS: The cost to participants to install the toilets ranged from $0 to $48 per participant. The average cost was $26 per participant, with a median cost of $31.

AN ORDINANCE PROGRAM: The cost to participants was $0.12 per participant.

A SURCHARGE PROGRAM: The cost to participants was $351 per participant.

Suggestions

LESSONS & RECOMMENDATIONS

- There are no easy answers in water conservation programs. There are simply too many factors and variables involved in reaching appropriate, tailor-made decisions for a given utility. A one-size-fits-all approach simply does not work.
- Commitment to conservation as a water management tool is necessary in order to achieve maximum program effectiveness at all levels of water resource management.
- Social and economic factors of the service areas must be fully understood and factored into program recommendations.
- Target areas of actual high inefficiency rather than just overall high water use.
- Adaptive Management: make the often thankless and frightening effort to go back and evaluate your programs; be willing to change direction, doing more of what is working and less of what is not.
- There is a disconnect between the conservation staff and the rest of the water resource management team in many utilities. Also, there is often an even a greater disconnect between the conservation folks and those who are the utility data "gatekeepers." These issues need to be addressed in order to achieve the most meaningful program selection, implementation and evaluation possible.
- The balance between soft conservation efforts (public awareness, customer service, utility goodwill) and the hard, goal-based (gallons or AF saved) targeted programs needs to be more clearly understood by the public and decision-makers. Though both types of program efforts are very necessary, programs are often ascribed as a conservation effort when in fact little in savings has been achieved. Additionally, the effort was not evaluated by the utility for its ability to either raise public awareness or to save water.

Conservation Programs

- A higher premium should be placed on good record keeping, i.e. the backup of all data, the recording and monitoring of all program related expenditures and results. Consumption records need to be kept as far back as possible.
- The importance of tracking program participation in detail, including water consumption for participants and similar non-participating households, or the whole customer class can not be overstated.
- Passive conservation is occurring and ongoing everywhere with ordinances, code changes, natural replacement of fixtures, and new technologies, so there will be diminishing savings to be achieved with water conservation actions taken now. The cost to save the next increment of water is almost always higher than the cost of the previous increment saved — so sound program decision-making becomes evermore crucial.

SUGGESTED AREAS OF ADDITIONAL STUDY

The ECoBA project would have benefited from more cases for comparison, particularly more ordinance and water-use assessments, and water harvesting and gray-water incentive efforts. These types of programs are increasingly used by utilities, but there is not yet adequate post-measure data to analyze.

It would have been useful to look at more multifamily, commercial and industrial programs. There are fewer of them being implemented and they are more difficult to compare as many are tailored for a specific facility. The potential for savings may well be higher in these sectors than in single-family.

Effectiveness of a variety of environmental education and public awareness efforts needs in-depth study. Looking at actual campaigns and curriculum evaluations with the goal of trying to determine actual water savings and attempting to get at quantifiable costs and benefits of these efforts is a worthwhile effort.

There is a need to develop realistic estimates of water savings degradation across program types and to have better estimates of the occurrence of "free riders" for different types of programs.

More work is essential on the value of conservation programs: quantifiable and intangible costs and benefits, replacement costs, etc.

Calculator Available

TOOL FOR WATER PROVIDERS

REPORT AVAILABLE ONLINE: INCLUDES INTERACTIVE CALCULATOR

An interactive calculator is included in the ECoBA Project Report (see website listed below). This calculator enables any utility to analyze and evaluate their own conservation programs using a slightly simplified version of the ECoBA methodologies and assumptions.

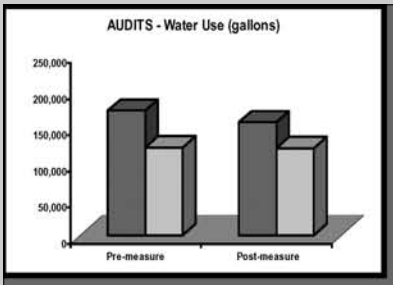
FOR ADDITIONAL INFORMATION: VAL LITTLE, Director of Water CASA, at Water CASA website: www.watercasa.org

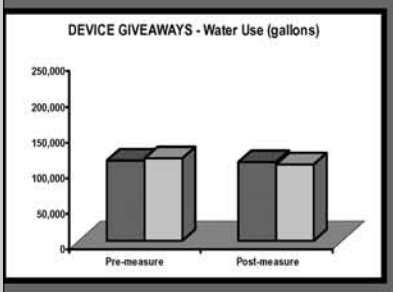
ECOBA PROJECT REPORT WEBSITE: The entire ECoBA Project Report: "*Evaluation and Cost Benefit Analysis of Municipal Water Conservation Programs*" is available online at: www.watercasa.org (follow: >> Research >> ECoBA Study)

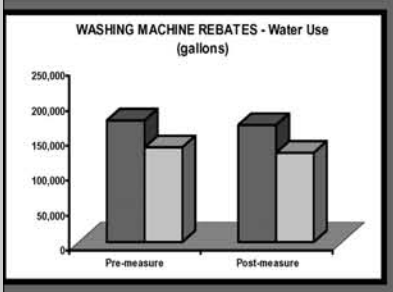
Val L. Little is the Director of the Water Conservation Alliance of Southern Arizona (Water CASA). She is also a Principal Research Specialist with the University of Arizona's Drachman Institute, in the College of Architecture and Landscape Architecture. Ms. Little formerly served as the Manager of the Hassayampa River Preserve for The Nature Conservancy and was also the Manager of Conservation and Public Information for Tucson Water (City of Tucson). She has published several articles dealing with conservation and water reuse. Val has an M.A. in Anthropology from the University of Arizona, and an A.B. in Landscape Architecture from the University of California at Berkeley.

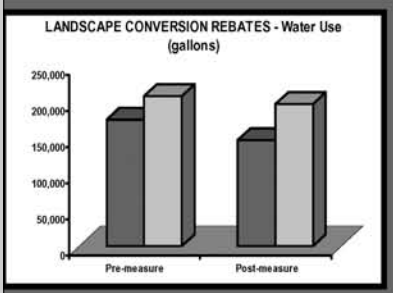
Acknowledgements

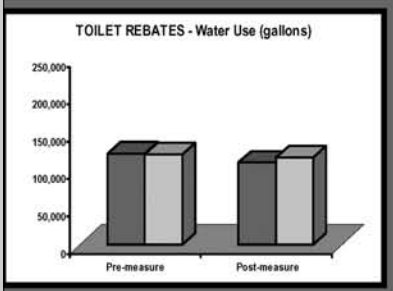
Water CASA is indebted to several reviewers of the project who were invaluable to us as we developed the methodology for our analysis and for their ongoing advice as the research developed. Thanks to Heather Campbell, Bonnie Colby, Elizabeth Corley, Jason Davis, David Esposito, Roger Hartley, Tanya Heikkila, Ken Seasholes, and Jackie Moxley. During the course of the research several key water conservation professionals were particularly helpful in our efforts to find appropriate cases to analyze and to appropriately use dissimilar data sets. We acknowledge the key efforts of Chris Dundon, Kim Pickett, Kim O'Cain and Kelly Kopp in the ECoBA experience.

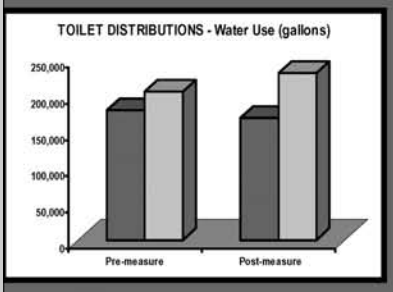












PRE & POST MEASURE RELATIVE WATER USE

The water use characteristics of participants compared with their control groups varied between programs and are reflected in the charts to the left. Customers receiving audits and washing machine rebates are substantially higher water users than average. Those receiving conservation devices and toilet rebates almost exactly reflect the single family residential populations of their utilities, and participants in the landscape conversion and toilet replacement programs are substantially lower than average water users even before taking advantage of these utility offerings.

Those availing themselves of **AUDITS** offered by their utility showed water use at 144% of the control group prior to the audit and 132% after. These are significantly higher water users than average. Some of the utilities studied actively target their high water users for auditing while it appears that other utilities who offer audits to all customers are attracting higher water users who may be more conscious of the need to lower their water use expenditures.

Water use among folks accepting free **CONSERVATION DEVICES** was so close to control group water use as to be statistically insignificant: 97% prior to obtaining the devices, and 101% after.

There is a significant difference between water use among customers who availed themselves of **WASHING MACHINE REBATES** and the control group. Prior to acquiring the new washing machines, participants used 130% of the typical single family customer in their utility. The two years following the installation of the new machine, these same customers actually used 132% of the control group. This is not a significant change.

Customers who took advantage of their utility's **LANDSCAPE CONVERSION REBATES** had water use that was 87% of the control group prior to the conversion and 77% following the conversion. These rebates were available to all customers so they weren't actively targeting high water users. The programs seemed to attract folks who were already thriftier than average and who were looking to cut their water use even farther, perhaps have less maintenance, and take full advantage of other side benefits of the program.

Water use for customers who took advantage of **TOILET REBATE** programs offered by their utilities was very similar to the control group:104% prior to receiving their rebates and 96% following the rebates.

TOILET DISTRIBUTION programs were targeted to a certain demographic area within the boundary of the utility and those receiving the distributed toilets used 91% of average water per household control group prior to the toilet distribution and 78% the two years following the distribution

RIGHTS-OF-WAY ACROSS FEDERAL LAND

by David C. Moon, Editor

Private Easements

On July 24, in *Western Watersheds Project v. Matejko* (No. 0535178 - 07/24/2006), the 9th Circuit Court of Appeals held that six rights-of-way used to move water across federal lands are not subject to general regulation by the US Bureau of Land Management (BLM). The court based its ruling on the fact that the rights of way had been recognized by Congress under an 1866 statute. The case involved rights-of-way across land managed by the BLM in the Upper Salmon River Basin. The decision eliminates the cloud of uncertainty hanging over water users throughout the West — thousands of similar easements exist across federal lands in all the western states.

ESA Consultation

Western Watersheds Project and Committee for Idaho's High Desert brought the case against BLM in 2001. The groups contended that under Section 7(a)(2) of the Endangered Species Act (ESA) BLM was required to "consult" if there is "any action authorized, funded, or carried out by" a federal agency (here, BLM) that could jeopardize any endangered or threatened species, or destroy or adversely modify habitat of such species. "This appeal presents the question of whether the BLM's failure to regulate certain vested rights-of-way held by private landowners to divert water for irrigation uses constitutes 'action authorized, funded, or carried out' by the BLM so as to require consultation." Slip Op. at 4. The court, however, also pointed out that the "this is a narrow suit…limited to attempting to compel the BLM to initiate consultation under section 7(a)(2) of the ESA." Slip Op. at 20. In a companion footnote, the court pointed out that "Western Watersheds or others can file an action under section 9 of the ESA (16 U.S.C. § 1538) against particular diversions to halt "takings" of threatened species, if the diversions jeopardize fish or their critical habitat — something Western Watersheds did earlier against the same type of diversions at issue here."

Species "Takings"

Parties opposing the environmental groups' position were concerned that consultation could result in a significant change in established law that would have disrupted state water rights and could have resulted in costly modifications as a condition for continued use of the rights of way on public lands.

The 9th Circuit unanimously reversed a March 2004 decision in which the federal district court held that consultation was required (see Israel, TWR #8). The appeals court found no duty on BLM's part to engage in ESA consultation because the federal agency had taken no action to fund, permit or use the rights-of-way and had no general ongoing regulatory responsibility with respect to their use. "We conclude that the duty to consult is triggered by affirmative actions; because there was no such 'action' here, there was no corresponding duty to consult." Slip Op. at 5.

Pre-FLMPA Easements

The rights-of-way (easements) at issue in the case were based on the Act of July 26, 1866, 14 Stat. 253, codified at 43 U.S.C. § 661 (repealed in part Oct. 21, 1976) (the 1866 Act). Nonetheless, the 9th Circuit also discussed other rights-of-way over federal land as being similar, and eventually treated rights-of-way that predated the Federal Land Policy Management Act (FLMPA) as if they would also fall within the parameters of the decision. "Similarly, the Act of March 3, 1891, 26 Stat. 1095, codified in pertinent part at 43 U.S.C. § 946 (repealed Oct. 21, 1976) (the 1891 Act), provided for a vested federal right-of-way for irrigation upon approval of a map by the Secretary of the Interior. *Utah Power & Light Co. v. United State*s, 243 U.S. 389, 406-07 (1917). Like the 1866 Act rights-of-way, rights vested under the 1891 Act are perpetual unless the use changes." Slip Op. at 6. The court discussed how the enactment of FLPMA affected existing rights-of-way. "In 1976, Congress changed the statutory regime regarding rights-of-way by enacting the Federal Land Policy Management Act (FLPMA), 43 U.S.C. §§ 1701-1784 (1976). Effective October 21, 1976, the FLPMA replaced a 'tangled array of laws granting rights-of-way across federal lands,' with a single method for establishing a right-of-way over public lands. *United States v. Jenk*s, 22 F.3d 1513, 1515 (10th Cir. 1994). Most important for present purposes, however, Congress specifically chose to preserve vested rights such as those under the 1866 and 1891 Acts." Slip Op. at 8.

Vested Rights Preserved

The decision's final sentence stated: "Even if the BLM could have retained the power to regulate the pre-FLPMA diversions, its determination made years ago to limit such power is not an 'ongoing agency action.'" Slip Op. at 20-21. Although strictly speaking the court's statements regarding all pre-FLMPA rights-of-way may be dicta, it is clear that the court felt the same decision would be applicable.

The State of Idaho intervened in the case, opposing the plaintiffs. "This case had the potential to be extremely disruptive to a significant portion of Idaho's agricultural community," Attorney General Lawrence Wasden said. "As a result of this decision, holders of rights of way throughout Idaho can go on with their business without having to worry about losing the ability to move their water across public lands." Wasden noted that there are other issues still to be litigated in the case and that the plaintiffs may seek further review of the Ninth Circuit decision.

For info: Bob Cooper, Idaho Attorney General's Office, 208/ 334-4112; the *Matejko* decision can be accessed at http://caselaw.lp.findlaw.com/data2/circs/9th/0535178p.pdf

WATER BRIEFS

WATER CONSERVATION NE

IRRIGATION EASEMENTS

EQIP: STATE & FED FUNDING

Nebraska is receiving nearly $800,000 in funds from the US Department of Agriculture's Natural Resources Conservation Service (NRCS) in support of the State's ongoing water conservation efforts in the Republican River basin.

The NRCS funding will be combined with $900,000 in State and local funds set aside to offer irrigators in the basin an opportunity to permanently retire irrigated acres for water conservation purposes.

The Nebraska Department of Natural Resources (NDNR) in collaboration with NRCS and the Upper, Middle and Lower Republican Natural Resources Districts (NRDs) will provide farmers and landowners in the basin with nearly $1.7 million in Environmental Quality Incentives Program (EQIP) funding for water conservation. NDNR will contribute $600,000 in funding for the partnership with the NRDs contributing $100,000 each.

Through EQIP, NRCS pays irrigators a $100 per acre payment for three years in return for filing a permanent easement that rescinds irrigation rights on targeted acres. The combined state and local funding offered by NRDs will provide an additional one-time payment of $375 per acre of land enrolled in EQIP, for a total of $675 per acre. One State/ District contract will be required.

The goal of the partnership is to enroll at least 2,400 acres, with the potential to save an estimated 2,600 **a**cre-**f**eet (AF) of water per year. An AF is defined by the amount of water needed to cover one acre of land in 12 inches of water. Irrigated lands near the Republican River and its major tributaries have the quickest positive response on the base flow of the river.

This initiative is currently a one-time offer to irrigation farmers. Under the contracts, landowners will maintain ownership of any EQIP land and will retain the right to dry land farm or return the property to grassland. The easement is permanent and remains in effect following any sale of EQIP lands. Additional funding may also be contributed by the Tri-Basin NRD, but has not been finalized.

To qualify, land must have been irrigated for four of the last six years using only ground water. The well that irrigates the offered field must be located within the initiative area and be NRD certified irrigated fields. The maximum area that can be enrolled and receive payment can not exceed 160 acres per participant. An existing field may be subdivided *only* when the field size exceeds 160 acres. Each contract must include at least 15 acres. The pipes, pivot, and all other equipment used to irrigate the enrolled acres must be permanently removed, detached or disabled. Producers can apply for an additional EQIP contract to apply terraces, establish grazing systems, etc.

Republican River irrigators are dealing with drought. They also need to reduce consumptive use in the basin to aid in compliance with the Republican River Compact. Irrigated lands near the Republican River and its major tributaries have the quickest positive response on the base flow of the river.

Acting NDNR Director Ann Bleed said, "This is another option for farmers to use and reduce groundwater usage in the Republican Basin, and it compliments the current Conservation Reserve Enhancement Program."

For info: Ann Bleed, NDNR, 402-471-2366; Pat McGrane, NRCS, 402-437-5328

WETLANDS ENFORCEMENT OR

AG EXEMPTION LIMITS

EPA ACTION

EPA has announced that the owner and manager of the Twin Forks Ranch in Hood River have agreed to restore 4.32 acres and enhance an additional 1.38 acres of wetlands that were impacted while constructing irrigation facilities on the property in 2004.

The property owner, Oswald Ranches, LLC., and its manager, Hugo Oswald, entered a voluntary agreement with the State of Oregon under the State's Fill and Removal Law and EPA under the Clean Water Act (CWA) in which they agreed to conduct wetlands restoration and mitigation.

Mr. Oswald and his company violated the CWA when he cleared a portion of a 73-acre parcel to convert to cherry orchards. Oswald believed that these areas were covered under state and federal agricultural exemptions and did not qualify as regulated wetlands. However, according to EPA, not all activities associated with agriculture, are exempt.

"The landowner in this case, mistakenly believed that its land clearing activities and irrigation reservoir construction were exempt from state and federal regulations," said Socorro Rodriguez, Director EPA's Oregon Operations Office in Portland. "The basic message here is when in doubt, check first."

The Oregon Department of State Lands also assessed a $3,600 penalty for the violation.

For info, contact: Yvonne Vallette, EPA, 503/ 326-2716 or email: vallette.yvonne@epa.gov

STORMWATER VIOLATION ID

EPA SETTLEMENT

EPA has reached settlement with CAV OK, LLC, an Idaho developer. The company was cited following an inspection at its construction site for violations of federal storm water management regulations.

The company has agreed to pay a $9,500 penalty for violations of the Clean Water Act (CWA) at its construction site in Coeur d'Alene, Idaho. Violations include failure to apply for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities before the start of construction, deficiencies in the Storm Water Pollution Prevention Plan (SWPPP), failure to conduct routine self-inspections, and inadequate installation of **b**est **m**anagement **p**ractices (BMPs) to control storm water runoff.

For info: Jeff Philip, EPA, 206/ 553-1465 or email: philip.jeff@epa.gov

EPA's stormwater permitting website: http://cfpub1.epa.gov/npdes/home.cfm?program_id=6

WATER BRIEFS

LEAD IN DRINKING WATER: EPA LEAD AND COPPER RULE PROPOSAL US

On July 18, 2006, EPA proposed regulatory changes to the existing **n**ational **p**rimary **d**rinking **w**ater **r**egulations (NPDWRs) for lead and copper (i.e, the Lead and Copper Rule (LCR)). [See Federal Register: July 18, 2006 (Volume 71, Number 137, pp40827-40863)] The purpose of the LCR is to protect public water system consumers from exposure to lead and copper in drinking water.

Lead is a highly toxic metal that was used for many years in and around homes. Even at low levels, lead may cause behavioral problems and learning disabilities especially among children six years old and under, whose brains are still developing. Children are most often exposed to lead from the paint of older homes. Lead in drinking water can add to the exposure.

Lead is not a natural constituent of drinking water. It is picked up as water passes through pipes and household plumbing fittings and fixtures that contain lead. Water leaches lead from these sources and becomes contaminated. In 1991, EPA issued the lead-and-copper rule to reduce lead in drinking water. The rule requires water utilities to reduce lead contamination by controlling the corrosiveness of water and, as needed, replace lead service lines used to carry water from the street to the home.

PROPOSED CHANGES ARE INTENDED TO:

- enhance the implementation of the LCR in the areas of monitoring, treatment, customer awareness, lead service line replacement
- improve compliance with the public education requirements of the LCR and ensure drinking water consumers receive meaningful, timely, and useful information needed to help them limit their exposure to lead in drinking water

THE PROPOSAL WOULD:

- revise monitoring requirements to ensure that water samples show how effective lead controls are
- clarify the timing of sample collection and tighten criteria for reducing the frequency of monitoring
- require that utilities receive State approval of treatment changes so that States can provide direction or require additional monitoring
- require that water utilities notify occupants of the results of any testing that occurs within a home or facility. It also would ensure that consumers receive information about how to limit their exposure to lead in drinking water
- require systems to reevaluate lead service lines that may have previously been identified as low risk after any major treatment changes that could affect corrosion control

The LCR has four basic requirements: 1) require water suppliers to optimize their treatment system to control corrosion in customer's plumbing; 2) determine tap water levels of lead and copper for customers who have lead service lines or lead-based solder in their plumbing system; 3) rule out the source water as a source of significant lead levels; and 4) if lead action levels are exceeded, require the suppliers to educate their customers about lead and suggest actions they can take to reduce their exposure to lead through public notices and public education programs. If a water system, after installing and optimizing corrosion control treatment, continues to fail to meet the lead action level, it must begin replacing the lead service lines under its ownership.

The entities potentially affected by this proposed rulemaking are public water systems that are classified as community water systems (e.g., systems that provide water to year-round residents in places like homes or apartment buildings) or non-transient, non-community water systems (e.g., systems that provide water to people in locations such as schools, office buildings, restaurants, etc.); State primacy agencies; and local and tribal governments.

EPA is proposing to clarify language in the rule that speaks to the number of samples required and the number of sites from which samples should be collected. EPA is also modifying definitions for monitoring and compliance periods to make it clear that all samples must be taken within the same calendar year. Finally, EPA has proposed revisions to the reduced monitoring criteria that would prevent water systems above the lead action level to remain on a reduced monitoring schedule.

EPA is proposing a change to the rule that would require water systems to provide advanced notification to the primacy agency of intended changes in treatment or source water that could increase corrosion of lead. The State primacy agency must approve the planned changes using a process that will allow the States and water systems to take as much time as needed for systems and States to consult about potential problems.

Current regulations allow utilities to consider lead service lines that test below the action level as "replaced" for the purposes of compliance. EPA is proposing revisions to the rule that would require these utilities to reconsider previously "tested-out" lines when resuming lead service line replacement programs.

The total annual direct costs to water systems resulting from proposed changes are estimated between $4.8 and $5.1 million. The majority of these costs to water systems are from the monitoring and public education requirements of the revisions. For State primacy agencies, the annual direct costs are estimated between $281,000 and $456,000. The majority of the costs to State primacy agencies arise from the State review and approval requirement for treatment changes included in the revisions. The one-time costs for review of the rule and implementation for water systems and State primacy agencies are approximately $8.1 million and $730,000, respectively.

CLOSE OF COMMENT: September 18, 2006

For info: Jeffrey Kempic, EPA, 202/ 564-4880 or email: kempic.jeffrey@epa.gov

EPA WEBSITE: www.epa.gov/safewater/lead>http://www.epa.gov/safewater/lead

WATER BRIEFS

STORMWATER STUDY CA

NUMERIC STANDARDS

The California State Water Board has extended the deadline until September 1 (5 pm) for the public to comment on the Storm Water Panel Recommendations on the Feasibility of Numeric Effluent Limits Applicable to Storm Water Discharges. A panel of stormwater experts was convened to make recommendations on the feasibility of numeric standards for discharges of stormwater associated with municipal, industrial and construction activities. This resulted in the release of the Panel's Report on June 19, 2006.

The Clean Water Act amendments of 1987, Section 402(p) require that discharges of stormwater from large and medium **m**unicipal **s**eparate **s**torm **s**ewer **s**ystems (MS4s) and discharges of stormwater associated with industrial activities be in compliance with NPDES permits. MS4 permits require that the discharge of pollutants be reduced to the **m**aximum **e**xtent **p**racticable (MEP). Discharges associated with industrial activities, were required to meet the technology based standards of **b**est **a**vailable **t**echnology (BAT) economically achievable or **b**est **c**onventional pollutant control **t**echnology (BCT), and to meet water quality standards.

In 1990, MS4 permits were issued to Santa Clara County by the San Francisco Bay Regional Water Board and to Los Angeles County by the Los Angeles Regional Water Board. These permits were appealed to the State Water Board. The primary basis of the appeals was the lack of numeric limits in the permits. The entities that brought the appeals argued that the permits needed to include numeric limits, as the discharges of pollutants must not only be reduced to the MEP, but they must also meet water quality standards. The State Water Board determined that it was not feasible at the time to develop numeric limits for MS4 permits, and that water quality standards could and should be achieved through the implementation of best management practices (BMPs). Since this ruling, the Regional Water Boards have typically not included numeric limits in stormwater permits. The State Water Board has adopted NPDES General Permits for the discharge of stormwater associated with industrial activities and for the discharge of stormwater associated with construction activities. Both of these permits contain language stating that developing numeric limitations is infeasible.

In addition to these actions on MS4 permits at the State level, there have been a number of rulings from the federal courts regarding the NPDES stormwater program. One of the most significant is from the 9th Circuit Court of Appeals. In *Defenders of Wildlife vs. Browner*, (9th Cir.1999), 191 F.3d 1159, *rehg.den.,* 197 F.3d 1035, the court held that MS4 permits need not require strict compliance with water quality standards. Rather, compliance was to be based upon the MEP standard. However, the permitting authority (the State Water Board/Regional Water Board) could at their option require compliance with standards. The State Water Board through the permit and appeals process has in fact required that the discharges from MS4s meet water quality standards, but has stated that compliance with numeric standards can be achieved through the implementation of BMPs in an iterative fashion.

The *Browner* decision also found that discharges of stormwater associated with industrial activities must be in strict compliance with water quality standards. In 2004, the State Water Board conducted a public hearing on a draft General Industrial Stormwater permit. This draft permit met with significant opposition due to the absence of numeric limits. Staff revised the draft permit to include the benchmarks contained in USEPA's multi-sector general permit. This change resulted in strong opposition from the regulated community.

The panel noted that concerns have been raised by both environmental groups and the regulated community that permitting has become overly complex, and that it is extremely difficult, if not impossible to objectively determine if a facility, operation or municipality is in compliance with its permit requirements. Environmental groups argue that requiring stormwater permittees to comply with numeric effluent limits will result in an easier way to measure compliance. The regulated community agrees, to a degree, but they argue that it is not simply a matter of selecting a number that is suitable for a POTW or industrial waste discharge. Due to the unique nature of storm events and stormwater discharges, any numeric limit that is placed in a stormwater permit must take into consideration the episodic nature of storm events and be truly representative of stormwater discharges. In addition, the regulated community has argued that there are going to be pollutants in stormwater discharges that did not originate in the MS4 (run on) or that they do not have the means to control, and therefore should be given special consideration.

In response to these arguments, State Water Board directed staff to convene a panel of stormwater experts to examine the feasibility of developing numeric limits for stormwater permits. The panel was asked to address industrial general permits, construction general permits, and area-wide municipal permits regarding the following: Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in stormwater permits? How would such limitations or criteria be established, and what information and data would be required? The experts were also asked to address both technology-based limitations or criteria and water quality-based limitations or criteria. In evaluating establishment of any objective criteria, the panel was requested to consider: (1) the ability of the State Water Board to establish appropriate objective limitations or criteria; (2) how compliance determinations would be made; (3) the ability of dischargers and inspectors to monitor for compliance; and (4) the technical and financial ability of dischargers to comply with the limitations or criteria.

For info: To access a copy of the final report and other information, see website: www.swrcb.ca.gov/stormwtr/numeric.html

WATER BRIEFS

HATCHERY/WILD SALMON WEST
9TH CIRCUIT DECISION

On July 6, the 9th Circuit Court of Appeals upheld federal regulations that drastically curtailed salmon fishing off the Pacific Coast because of low projected returns of salmon that will spawn naturally in the Klamath River. *Oregon Trollers v. Gutierrez*, (No. 0535970; 7/06/2006). The federal district court had granted summary judgment to defendants, and the 9th Circuit affirmed. The court recognized the high stakes involved in the case. "There is little doubt that the restricted salmon fishing season under the 2005 management measures imposed significant hardship on Pacific fishing communities. One estimate pegged the loss caused to commercial fishermen and related businesses at $40 million." Slip Op. at 10.

The plaintiffs/appellants challenged restrictions on ocean harvests recommended by the Pacific Fishery Management Council and imposed by the National Marine Fisheries Service (NMFS). The court rejected the challenge brought by the Oregon Trollers Association, coastal fishermen and fishing business owners who argued, among other claims, that NMFS was wrong not to count all hatchery salmon in determining the salmon population. The Pacific Legal Foundation (PLF) represents the group that brought the challenge. Defendants included NMFS, the Yurok Tribe and the Hoopa Valley Tribe. In a PLF press release, attorney Russell Brooks stated, "Because the three-judge panel did not recognize the legal requirement that regulators must count all chinook, this decision is ripe for appeal—first to the full Ninth Circuit for rehearing, and, possibly, to the United States Supreme Court."

"Plaintiffs' primary claim is that the Magnuson Act forbids the NMFS to distinguish between natural and hatchery spawners for the purposes of Klamath chinook management and conservation. In the view of plaintiffs, the NMFS must count hatchery spawners towards any escapement goal for Klamath chinook. If this were required, an escapement goal would be satisfied much more easily with less restrictive management measures." Slip Op. at 21.

The 9th Circuit's holding turned largely on its interpretation of the Magnuson Act. "In short, we see nothing in the Act to prevent the NMFS from regarding naturally spawning Klamath chinook as a 'stock' of salmon within the meaning of § 1802(37), and to prevent the agency from adopting protective measures in an FMP to conserve this 'stock.' Even without the assistance of *Chevron* deference, we would read the Act in this way. Our obligation to give *Chevron* deference to the NMFS's interpretation of the Act that it is charged to administer removes any possible doubt." Slip Op. at 24 (*Chevron* deference refers to deference given to an agency interpretation).

The plaintiffs' case relied heavily on the widely reported federal district court decision in the *Alsea* case (see TWR #12, Water Briefs). The 9th Circuit in this latest decision, however, casts some doubt on just how far-reaching the *Alsea* case actually is. "We did not review the district court's decision in *Alsea* on the merits. *See Alsea Valley Alliance v. Dep't of Commerce*, 358 F.3d 1181 (9th Cir. 2004) (dismissing appeal on jurisdictional grounds). But even if the district court in *Alsea* was correct in its interpretation of the ESA (which we do not decide), its decision is not relevant to the question before us. The ESA and the Magnuson Act use different terminologies. The ESA refers to 'species,' while the Magnuson Act refers to 'stock.' There is nothing in the ESA, or in the district court's decision in *Alse*a, that even remotely suggests that 'species' and 'stock' have the same definition." Slip Op. at 25.

Ultimately, the 9th Circuit agreed with the district court's rejection of the plaintiffs' claims on the merits, noting, "the escapement floor reflected 'an eminently reasonable consideration when managing a fishery to maintain its long-term viability.'" Slip Op. at 11.

For info: Scott Williams, Alexander Berkey Williams & Weathers (Atty for Yurok Tribe), 510/ 548-7070; Russell Brooks, PLF, 425/ 576-0484, or website: www.pacificlegal.org/; to access the 9th Circuit's decision: http://caselaw.lp.findlaw.com/data2/circs/9th/0535970p.pdf

GROWTH LIMITS NM
RECLAMATION WELL

City Councilors for the city of Las Vegas, New Mexico recently approved a resolution that restricts new development projects that require water or increased consumption. Faced with the potential for devastating water shortages for existing residents due to the ongoing drought, city officials enacted the resolution that, although it may be temporary, essentially prevents growth unless officials agree to an exception to the resolution. City officials are searching for water options since they believe they can't depend on supplies from the Gallinas River, including new wells or a water purchase from a nearby rancher who is apparently willing to sell.

Meanwhile, the Bureau of Reclamation (Reclamation) announced on July 31 that it has approved a request from the City of Las Vegas for an exploratory well that could ultimately ease the city's water shortage. Drilling of the 3,000-foot exploratory well in the Taylor Well Field is expected to begin later this summer. It will determine whether viable sources of water exist at deeper levels that could increase the city's supply and provide a reliable water source during drought. The depth of the well is expected to keep it from affecting the existing Taylor Wells or residential wells in the area.

Funding for the project is being provided through Reclamation's Drought Emergency Assistance Program. The program was boosted earlier this summer with a $9 million supplemental appropriation for drought assistance in 17 western states sponsored by Sen. Pete Domenici. The drought program provides Reclamation with the means to help tribes, states, municipalities and nonprofit organizations find ways to minimize losses and damages associated with severe drought.

For info: Mary Perea Carlson, Reclamation, 505/ 462-3576

CALENDAR

Please Note: An extended Calendar containing ongoing updates now appears on The Water Report's website: www.TheWaterReport.com. Subscribers are encouraged to submit calendar entries, email: thewaterreport@hotmail.com

August 15-16 TX
2006 Public Drinking Water Conference, Austin, Doubletree Hotel. Sponsored by the Texas Commission on Environmental Quality. For info: TCEQ, 512/ 239-1000, website: www.tceq.state.tx.us/permitting/water_supply/pdw/conference.html

August 15-17 NM
Natural Attenuation for the Remediation of Contaminated Sites, Albuquerque. RE: Contaminant Transport & Attenuation, Solute Transport Models, Monitoring Programs, Graphic & Statistical Techniques, Negotiating Options, & Field Sampling. For info: National Ground water Association, website: https://info.ngwa.org/servicecenter/Meetings/Index.cfm#MT2

August 17-18 IL
Clean Water in the Midwest, Chicago. For info: Law Seminars Int'l, 800/ 854-8009, or website: www.lawseminars.com/

August 23 WA
Water Sales & Transfers, Spokane. For info: Lorman Education Services, 866/ 352-9539 or website: www.lorman.com/seminars/

August 19-22 TX
Second International Conference on Environmental Science & Technology, Houston, Wyndham Greenspoint Hotel. Sponsored by the American Academy of Sciences. For info: Jim Hong, 713/ 776-8846, Conference email: env-conference@AASci.org, or website: www.AASci.org/conference/env/2006/index.html

August 23 OR
Fundamental Contaminant Chemistry - A Review of Chemistry Principles Essential for Understanding Contaminant Behavior in the Environment, Portland, Ecotrust Conference Center 721 NW 9th Avenue, 8:30am–5pm. For info: Erick McWayne, Northwest Environmental Training Center, 206/ 762-1976 or email: emcwayne@nwetc.org or website: www.nwetc.org/training.htm

August 23-25 CO
Water in the Holy Land: Can We Learn From Water Planning in the Middle East? Colorado Water Congress Annual Meeting, Breckenridge, Great Divide Lodge. RE: Legislature & Water, New Technology (Desal), Drip Irrigation, Groundwater Augmentation, Regional Cooperation, Water Supply Update, Colorado River Reservoirs, & Water Quality in Water Transfers. For info: CWC, 303/ 837-0812, email: cwc@cowatercongress.org, or website: www.cowatercongress.org/summer_convention.htm

August 27 -29 OR
Environmental Council of the States (ECOS) Annual Conference, Portland, Benson Hotel. DEQ Hosts. More than 200 Environmental Regulators and Stakeholders Expected. Highlights Include Joint Meeting of the Environmental Health Forum and the Children's Health Workgroup; Local Government Forum; Remarks by Congressional Staff on Priority Environmental Issues and a Keynote Address by EPA Administrator Stephen L. Johnson. DEQ Director Hallock Completes Her Term as ECOS President at Conference. For info: Cat Skaar, DEQ, 503/ 229-5301 or ECOS website: www.ecos.org

August 28-31 MI
Wetlands 2006: Focus on the Great Lakes: Applying Scientific, Legal, and Management Tools to Restore Wetland and Watershed Functions, Traverse City, Grand Traverse Resort. RE: Annual Meeting of Association of State Wetland Managers. RE: Restoration & Management Tools, Legal Symposium: Wetlands & Other "Waters of the US" Legal Issues & Challenges (*Rapanos* & *Carabell* decision). For info: Association of State Wetland Managers, email: laura@aswm.org or website: www.aswm.org/calendar/wetlands2006/wetlands2006.htm

August 28-31 OR
Hazardous Materials Management System User's Conference, Portland, Downtown Waterfront Marriott. For info: Craig Olsen, 801/ 973-8884 or website: www.environmax.com

August 30 OR
Endangered Species Act Implementation and Compliance - Overview & Refresher on ESA Sections 4, 7, 10 & Emerging Issues, Portland, Ecotrust Conference Center 721 NW 9th Avenue, 8:30am–5pm. For info: Erick McWayne, Northwest Environmental Training Center, 206/ 762-1976 or email: emcwayne@nwetc.org or website: www.nwetc.org/training.htm

September 5-9 CA
"Challenges in Sustainable Floodplain Management & Development," Floodplain Management Association Annual Conference, Coronado. RE: Watershed Management Planning, Environmental Restoration & Flood Damage Reductions, Public Education & Outreach. For info: FMA website: www.floodplain.org

September 7-8 MT
Agricultural Law, Billings. For info: The Seminar Group, 800/ 574-4852, email: registrar@theseminargroup.net, or website: www.TheSeminarGroup.net

September 10-13 CA
WateReuse Association's 21st Annual Symposium, Hollywood. RE: Water Reuse, Desalinization, Micropollutants, Indirect Potable Reuse, Operational Issues & Global Water Reuse. For info: WateReuse Ass'n website: www.wateruse.org/2006 Symposium/

September 10-14 NY
American Fisheries Society Annual Meeting, Lake Placid. For info: AFS website: www.fisheries.org/html/index.shtml

September 13 IL
Clean Water in the Midwest, Chicago, The Gleacher Center. For info: Law Seminars Int'l, 800/ 854-8009, website: www.lawseminars.com/seminars/06CLIL.php

September 13-16 AZ
Water & Water Science in the Southwest: Past, Present & Future, Arizona Hydrological Society 19th Annual Symposium, Glendale. RE: Runoff Impacts, Recharge, Subsidence, Groundwater Remediation, Monitored Natural Attenuation, Emerging Contaminants, Modeling and GIS, Tribal issues, Colorado River Issues, Privatization, Mining & Energy Development Hydrology, Glen Canyon/Grand Canyon Issues, Delivery/Distribution of Water Supply, Climate Change & More. For info: Christie O'Day, AHS, 480/ 894-5477, or AHS website: www.azhydrosoc.org

September 15 OR
Property Transactions & Real Estate Development, Portland. For info: Holly Duncan, Environmental Law Education Center, 503/ 282-5220, email: hduncan@elecenter.com, or website: www.elecenter.com

September 15 GA
Environmental Law, Atlanta. For info: The Seminar Group, 800/ 574-4852, email: registrar@theseminargroup.net, or website: www.TheSeminarGroup.net

September 19-20 CO
Colorado Water Conservation Board Meeting, Vail, Evergreen Lodge. For info: CWCB, 303/ 866-3441, or website: www.cwcb.state.co.us/Board/meetingschedule.htm

September 17-20 CA
California and the World Ocean Conference (CWO '06), Long Beach, Hyatt Regency. Agenda Includes Discussion of Implementing the California Ocean Protection Council's Strategic Plan. For info: Conf Organizers, 916/ 922-7032 or email: cwo02@completeconference.com or website: http://resources.ca.gov/ocean/cwo06/

September 18-20 MT
Northwest Water Policy and Law Symposium, Bozeman, Holiday Inn. RE: Infrastructure Matters, Surface Water/Groundwater: Relation in Nature and Policy, Water Regulation v. Land-Use Regulation, Challenges of Natural Resource Policy & More. For info: Susan Higgins, Montana Water Center, 406/ 994-6690, email: water@montana.edu, or website: water.montana.edu/policy/default.htm

September 19 OR
Mercury: Global Problem, Local Solutions, Northwest Environmental Business Council & Air and Waste Management Association Event, Portland, OMSI. RE: Assessment, Substitution, Responsible Management; Bioaccumulation Risks & Case Studies; Reducing Sources of Mercury: Mercury in Wastewater; Mercury Amalgam; Mercury from Coal Fired Power Plants; Mercury in Steel Mini-mills; Legacy Sources; Municipal Incinerators. Remediation and Treatment of Mercury - Success Stories. For info: Sue Moir, NEBC, 503/ 227-6361 or email: sue@nebc.org

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September 21 CA
CEQA & NEPA, Los Angeles. For info: Law Seminars International, 800/ 854-8009, website: www.lawseminars.com/

September 21-22 CA
"Assessment, Use, and Management of Groundwater in Areas of Limited Supply," Groundwater Resources Association of California Annual Meeting, San Diego. For info: Bill Pipes, 559/ 264-2535, or email: wpipes@geomatrix.com

September 25-26 NV
Western Water Law: A Comparison Among States, Las Vegas, Rio All-Suite Hotel & Casino. RE: CWA Cases, Judicial/Administrative Comparison of States, The Colorado River, Groundwater Regimes, Case Law Update, ESA Water Right, Water Supply & Land Use Planning. For info: CLE Int'l, 800/ 873-7130 , email: register@cle.com, or website: www.cle.com

September 25-26 CA
California Energy 2006, San Francisco, San Francisco Marriott. RE: Shifts in Energy Policy, Local Control, Global Warming Concerns, Future Sources & Environmental Impact, Power Markets & Regulation. For info: Law Seminars Int'l, 800/ 854-8009, website: www.lawseminars.com/frame_seminars.htm

September 25-27 MT
Public Land Law Conference: "The Law of Ecosystem Restoration," Missoula. RE: Policy Implications of the Clark Fork Basin Natural Resource Damage Program. For info: University of Montana website: www.umt.edu/publicland/Conference

September 25-27 CA
CASQA 2006 Conference, Sacramento, Radisson Hotel. Sponsored by the California Stormwater Quality Association. RE: Stormwater Technologies, Regulations, Programs & Community Impacts. For info: CASQA, 650/ 366-1042, email: info@casqa.org, or website: www.casqa.org

September 25-27 WA
An Introduction to Ground Water Course, Seattle. For info: National Ground Water Association, website: https://info.ngwa.org/servicecenter/Meetings/Index.cfm#MT2

September 27 CA
Groundwater Wells: Use & Shared Use Agreements, Rohnert Park. For info: Lorman Education Services, 866/ 352-9539 or website: www.lorman.com/seminars/

September 28 OR
Northwest Environmental Business Council's Stormwater Solutions Showcase, Portland, Oregon Museum of Science & Industry, 1945 SE Water Ave. Target Audience Includes DEQ 1200 C, 1200 Z, 1200 COL Permit Holders and Other Environmental Professionals. For info: Sue Moir, NEBC, 503/ 227-6361 or email: sue@nebc.org

September 28-29 TX
Texas Water Law, Austin, Omni Hotel at Southpark. RE: Water Law Basics, Groundwater Districts, Bed & Banks, TCEQ's Protection Role, Lower Colorado River Authority Supply, Land Development, Water Markets, Environmental Flows, Water Quality & Wetlands, Water Planning, Rampant Development, & Regulatory Takings. For info: CLE International, 800/ 873-7130, email: register@cle.com, or website: www.cle.com

September 29 WA
Clean Water Act and Stormwater Management, Seattle. For info: Holly Duncan, Environmental Law Education Center, 503/ 282-5220, email: hduncan@elecenter.com, or website: www.elecenter.com

October 3-4 CO
2006 Tamarisk Research Conference: Current Status and Future Directions, Fort Collins, Fort Collins Hilton. Sponsored by the Tamarisk Coalition, the Center for Invasive Plant Management, and CSU. RE: Management Efforts, Future Research Needs, Effective Policy & Management Decisions. For info: Conference website: www.tamarisk.colostate.edu/

October 4-6 CO
Sustaining Colorado Watersheds: Science & Restoration Through Collaboration, Breckenridge. Joint conference of Central Rockies Chapter Society of Ecological Restoration, Colorado Riparian Association & Colorado Watershed Assembly. For info: website: www.ser.org/cerser/2006Conference.asp

October 5-6 OR
Oregon Environmental Quality Commission Meeting, Location TBA. For info: Cat Skaar, ODEQ, 503/ 229-5301, or website: www.deq.state.or.us/about/eqc/EQCagendas.htm

October 6 AK
Permitting Strategies, Anchorage. For info: The Seminar Group, 800/ 574-4852, email: registrar@theseminargroup.net, or website: www.TheSeminarGroup.net

October 10-20 CA
Watershed Partnership Seminar 2006, Riverside, Mission Inn. Sponsored by the California Bay-Delta Authority. For info: CBDA website: www.baydeltawatershed.org/

October 11-13 CA
2006 Water Quality/Regulatory Conference, Ontario, Doubletree Hotel. Sponsored by the East Valley Water District. For info: Jo McAndrews, EVWD, 951/ 787-9267, or website: www.evwd.com

October 12-13 IL
Endangered Species, Chicago. For info: Law Seminars International, 800/ 854-8009, or website: www.lawseminars.com/

October 12-13 MT
AWRA Montana Section Annual Meeting, Polson. For info: AWRA website: http://awra.org/state/Montana/events/conference.htm

The Water Report
Water Rights, Water Quality & Water Solutions in the West
260 N. Polk Street • Eugene, OR 97402