

**The Sale And Leasing Of Water
Rights In Western States:
An Update To Mid-2003**

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Executive Summary

Transactions involving water rights have been taking place in the Western States for many decades. Although there exist publications which describe sales and leases of water rights, never has a broad focused data base been created reflecting the details of these types of transactions. In 2002 Ms. Mariella Czetwertynski prepared such a data base that included types of buyers (lesers) and sellers (leasees), the number of acre-feet of water sold or leased, and the prices paid per acre-foot for leased or purchased water rights for the period 1990-2001. This information was provided in tables for all transactions given in both the *Water Strategist* and *Water Intelligence Monthly* publications for the period 1990 through July, 2001, for which complete data (number of a.f. and price) were reported. This study updates Czetwertynski's study to include water sales and leases through July, 2003.

Several observations from these data may be of interest to Eastern States faced with growing water scarcity. These include, first, the fact that the bulk of all sales seldom if ever involve farmers as buyers; they are typically always sellers. Farmers do represent a substantial number of entities that *lease* water for short term periods. Second, as one might expect, states where growth has placed increasing strains on water supplies have experienced rapid increases in water prices. In the Colorado Big-Thompson project, average prices per share increased from some \$2,000 in 1990 to more than \$12,000 in mid-2003 (constant 2001 dollars). While Nevada had little in the way of water rights trades in the early 1990s, beginning in 1998 the annual number of trades increased from about 2 in 1998 to 23 in 1999, then falling to around 15 per year in 2000 and 2001. Average price per acre foot increased from \$3,429 in 1998 to more than \$5,000 in the period 2001-mid2003.

Finally, it is important for Eastern States, like Georgia, to understand the conditions that must exist for an institution that promotes the sale and/or lease of water rights — conditions that, unfortunately, do not exist in (e.g.) Georgia's Flint River Basin. With farmers as the primary seller and urban/industrial entities as the primary buyer, trades require that either agricultural areas lie upstream of urban/industrial centers, or that the bulk of water supplies used by farmers flows through upstream urban/industrial centers. Irrigated farming in the Flint River Basin takes place more than a hundred miles *downstream* of Atlanta; moreover, the headwaters of the Flint River is in the Atlanta area. These conditions imply that any system that Georgia might adopt that allowed the transfer of water use permits would likely result in few — very few — trades.* Such trades would occur only over time in which new industry chooses to locate in South Georgia.

* This presumes, of course, that the water trading institution has adequate safeguards for the public interest, as set out in Cummings, Norton, and Norton (2001).

**The Sale And Leasing Of Water Rights In Western States:
An Overview For The Period 1990-2000**

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An Overview For The Period 1990-2000

I. Introduction

Transactions involving water rights have been taking place in the Western States for many decades. Although there exist publications that describe these transactions, never has a broad focused database been created reflecting the details of these transactions, such as number of acre-feet involved in the transactions and the prices paid per acre-foot of leased or purchased water rights. In 2002 Ms. Mariella Czetwertynski prepared a report¹ that provided a database that compiled and reported some of the details of these transactions including the entities involved, the number of acre-feet of water sold or leased, and the prices paid per acre-foot of leased or purchased water rights for the period 1990-2001. This information was provided in tables for all transactions given in both the *Water Strategist* and *Water Intelligence Monthly* publications for the period 1990 through July, 2003, for which complete data (number of a.f. and price) are reported. This study updates Czetwertynski's study to include water sales and leases through July, 2003.

II. Method

¹ Czetwertynski, Mariella, "The Sale and Leasing of Water Rights in Western States: An Overview for the period 1990-2000," Water Policy Working Paper #2002-002 Andrew Young School of Policy Studies, Georgia State University, March, 2002.

Stratecon, a strategic planning and economics consulting firm specializing in water and other natural resources, publishes Water Strategist (WS). WS is a paid circulation journal that reports, among other things, transactions involving the lease or purchase of water rights in 14 of the 17 Western States.² Generally, the transactions are detailed with information on who is selling or leasing water, as well as who is purchasing or leasing water, from where, and for how much. During some period of time, these transactions were reported in Water Intelligence Monthly (WIM), a publication complimentary to the WS.

The information in the transactions reported in these two publications is the sole reference for this database. Monthly and quarterly issues of both publications, WS and WIM, from January 1990 to September 2001, were reviewed to complete the database. The transactions *for which all desired information was provided* were recorded into an excel worksheet. The desired information included the Seller or Leaser of water rights, the Buyer or Lessee of water rights, the purpose for which the water will be used, the quantity of acre-feet, and the price paid per acre-foot.

The worksheets, given below, containing transactions with complete information are the basis of this report. For easier viewing, the data or transaction descriptors in this worksheet are organized by state. The transactions for each state are separated into those involving purchases of water rights and those involving leases of water rights (or one-time purchases of an amount of water). The purchase of an amount of water is common among the transaction reviewed. For the purpose of this database, these purchases have been categorized as leases because they occur at one point in time and involve the purchase of an amount of water, not the water right.

² For the period 1990-2001, there were no reported sales or leases of water rights in the states of North Dakota, South Dakota, and Nebraska.

Given that the purpose of the data base is to provide values for which water has been sold or leased, the author has attempted to record prices from which all associated costs³ have been subtracted. This was not always possible given that many reported transactions do not include these data or report them in a way than makes them amenable to calculations of costs-per-acre-foot.

In many cases reported transactions do not provide data that allow for unambiguous identification of key information. Examples include: transactions for which the price paid per acre foot is either unclear or not reported; transactions that involve the purchase of land and its appurtenant water rights (thus, we are unable to separate the reported price into the price of land and the price paid for the water right); transactions that involve the transfer of storage of pumping rights, or some sort of an exchange for water. These transactions are therefore not included in the body of the report. These excluded data are available from the authors upon request.

III. Water Lease/Sale Transactions In Western States: January 1, 1990 though July 31, 2003: An Overview

³ Such costs typically include O&M and conveyance costs, as well as administrative charges and other types of fees.

Sales and lease data for Western States included in this survey for the period 1990-2003 are summarized below in Table 1. Sales/lease prices are given in constant 2001 dollars.⁴

Several observations concerning these summary data warrant mention.

First, there are perhaps surprisingly few *sales* of water rights occurring during this 13.5-year period; the average number of water sales transactions was *less than 3* in all states except Nevada, New Mexico, and Colorado's Big-Thompson Project. In terms of the average annual number of transactions, leases dominate in all states except Kansas and Utah.

Second, in all states farmers are *very* seldom the buyer of water rights. There were 92 transactions involving farmers as buyers between 1990-2003 in Colorado's "share" district, primarily the Big-Thompson Project; still, farmers were buyers in less than 10% of the 929 transactions recorded for these projects. In the main, buyers of water rights in western water markets are providers of municipal/industrial water supplies (an exception is seen in Oregon, where a good number of transactions are for environmental purposes; see details in the table for Oregon); farmers are typically the *seller* of such rights. Farmers as lessees of water rights are much more common, but municipal/industrial entities still dominate as lessees in most states.

Finally, it is important for Eastern States, like Georgia, to understand the conditions that must exist for active sales and/or leases of water rights — conditions that, unfortunately, do not exist in (e.g.) Georgia's Flint River Basin. With farmers as the primary seller and urban/industrial entities the primary buyer, trades require that either agricultural areas lie upstream up urban/industrial centers, or that the bulk of water supplies used by farmers flows

⁴ Prices adjusted to 2000 dollars with the CPI (all items), *Statistical Abstract of the U.S.*, 2002, Table 681 Department of Commerce (Washington DC: 2000). 2002 and 2003 prices are assumed to have increased by 3% per year.

through upstream urban/industrial centers. Irrigated farming in the Flint River Basin takes place more than a hundred miles downstream of Atlanta; moreover, the headwaters of the Flint River is in the Atlanta area. These conditions imply that any system that Georgia might adopt allowing the transfer of water use permits would likely result in few — very few — trades. Such trades would occur only over time in which new industry chooses to locate in South Georgia.

Referring now to Table 1, it is interesting to note the average number of acre feet (a.f.) of water involved in sale and lease transactions: the volume of water typically (but not always; see, e.g., Oklahoma and Washington) involved in leases is orders of magnitude larger than for the sale of water rights. Moreover, differences across states in average prices (per a.f. or per share) paid for the purchase and lease of water rights are remarkable. It is difficult to explain such differences in averages inasmuch as similar variances in sales/lease prices are observed *within* a state (see detailed tables for each state given below). Causes for such differences can be expected to reflect considerations such as: the relative scarcity of water within the basin where a transaction takes place; the source of water (ground water v. surface water; private v. federal or state project water — the latter will typically be highly subsidized and therefore cheaper); the distance the water must be transported from seller to buyer, and the kind of water being purchased or leased (e.g., raw waters from surface sources in contrast with treated wastewater).

The increase in prices for water rights over our 13-1/2 year period of record is remarkable, particularly in states where growth has places particular strains on existing water supplies — most notably in Colorado and Nevada. Figures 1-4 below give number of sales and

Table 1
Sales/Leases In Western States, 1990-2000: Summary

State	#Sales	#Leases	Av a.f. Sales	Av. a.f. Leases	# Ag: Buyers	# Ag: Lessees	Av. Price/a.f. Sales (\$2001)	Av. Price/a.f. Leases (\$2001)
Arizona	34	71	3,148	85,168	0	14	\$1,299	\$195
California	31	299	16,222	19,301	4	104	\$1,265	\$113
Colorado	5	44	191	4260	1	14	\$2,767	\$26
Colorado-shares [1]	929 [3]	na	57 [2]	na	92]	na	\$7,748 [4]	na
Idaho	3	53	2,360	55,136	1	29	\$206	\$15
Idaho-shares [1]	9	na	23 [2]	na	8	na	\$311	na
Kansas	7	7	565	692	0	3	\$496	\$48
Nevada	69	3	694	5,445	0	0	\$4,530	\$1,222
New Mexico	36	25	574	14,050	0	4	\$2,345	\$44
Montana	0	2	0	3,445	0	1	\$0	\$19
Oklahoma	3	23	2,748	25,828	0	0	\$1,428	\$596
Oregon	3	18	2,748	29,000	0	12	\$489	\$117
Texas	31	131	2,002	2,572	0	40	\$712	\$89
Utah	14	12	726	7,477	1	10	\$2,105	\$30
Utah-shares[1]	8	na	825 [2]	na	3	na	\$1,842	na
Washington	4	23	4,253	3,834	0	9	\$5589	\$53
Wyoming	1	41	56	2,491	1	19	\$2,597	\$26

[1] In some districts, shown here as Colorado-shares, Idaho-shares, and Utah-shares, water rights are defined (and therefore sold/leased) in measurements other than acre feet: "shares" or "units." The acre-foot equivalent of a share or unit is typically determined by water availability to the District. Thus, in "dry" years the a.f. equivalent of a share/unit is less than during a "wet" year.

[2] Average number of shares/units per transaction.

[3] The Colorado-Big-Thompson (and other "share" markets) account(s) for 938 (75%) of the 1,255 reported sales transactions. Only 61 (7.5%) of 818 CBT transactions involved a farmer as a buyer.

[4] The reader should use care in interpreting this average price. The average price/share of \$7,748 masks anomalies that we are unable to explain. The average price/share in the CBT is \$4,968. It is ~~\$28,788~~ in the 110 transactions reported for other basins/districts in Colorado that use "shares" or "units." In these basins/districts, we observe reports of (e.g.) Two shares (in the Union Ditch/ Reservoir) selling for ~~\$218,500~~ and ~~\$250,000~~. Our feeling is that these data reflect either mis-reporting at our data source or misinterpretation on our part.

average sales prices for these two states over the 1990-2003 period. In the Colorado Big-Thompson project, average prices per share increased from some \$2,000 in 1990 to more than \$12,000 in mid-2003 (constant 2001 dollars). While Nevada had little in the way of water rights

trades in the early 1990s, beginning in 1998 the annual number of trades increased from about 2 in 1998 to 23 in 1999, then falling to around 15 per year in 2000 and 2001. Average price per acre foot increased from \$3,429 in 1998 to more than \$5,000 in the period 2001-mid-2003.

The reader is referred to individual state summaries of sales and leases given below for greater detail.

IV. Definition Of Variables And Acronyms

As noted above, information for all the transactions given in this report are taken from the publications *Water Strategist* (WS), or *Water Intelligence Monthly* (WIM). For each

transaction given in the report the source publication, WS or WIM, the issue date, and the issue number are provided for the reader for purposes of verification or as a source for further information concerning the reported transaction.

Surface water: S is the descriptor used to describe the transactions involving the sale or lease of surface water rights. Also included in this category are the transactions that are not directly specified as surface water transfers, but in which water is said to be diverted from rivers, streams or creeks.

Ground water: G is the descriptor used to describe the transactions involving the sale or lease of groundwater rights.

Treated water: T is the descriptor used to describe the transactions involving the sale or lease of treated water rights. There are various levels of treated water; primary, secondary, and tertiary. Some states use tertiary water and reclaimed water synonymously. However, due to differences in water quality standards and uses associated with treated water in different states, reclaimed water is recorded under a separate heading.

Reclaimed water: R is the descriptor used to describe the transactions involving the sale or lease of reclaimed water rights. Reclaimed water is wastewater that has been through various stages of treatment, whereby all traces of organic chemicals and dissolved solids are removed. Reclaimed water can be used for the irrigation of certain plants, and landscape irrigation.

Stored water: SW is the descriptor used to describe the transactions involving the sale or lease of stored water rights. This category was made separate from surface water only for the purpose of differentiating between water coming directly from moving water and water accumulated and stored in a reservoir. However, when stored water is not expressed as such in a

transaction's description, it is often recorded as surface water.

Project water: P is the descriptor used to describe the transactions involving the sale or lease of project water rights. This category was made separate from all other types of water for the purpose of being able to identify and isolate project water transactions from other water type transactions.

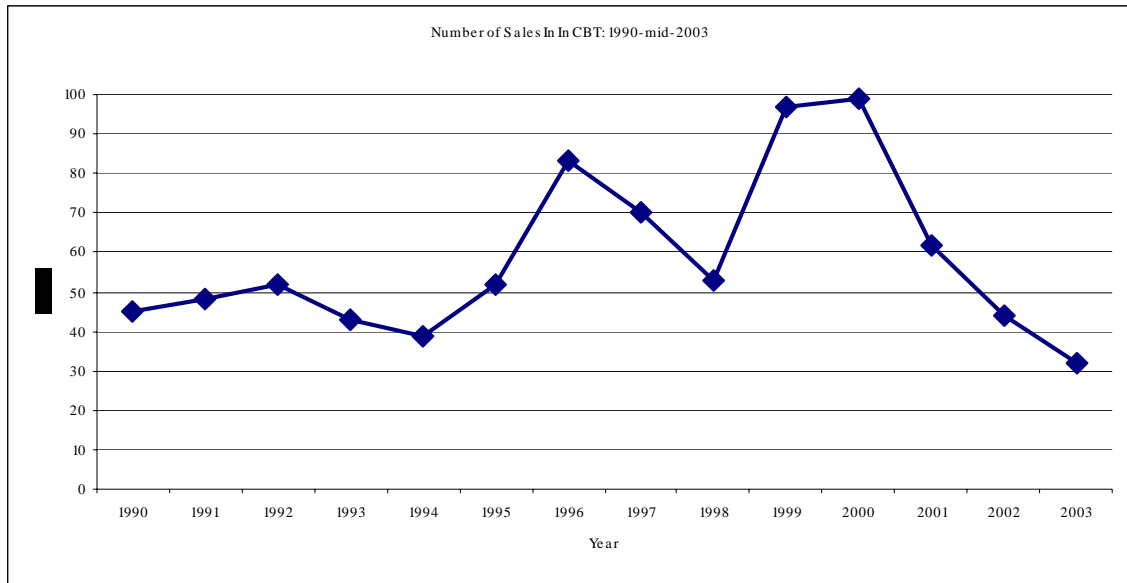
Banked water: B is the descriptor used to describe the transactions involving the sale or lease of banked water rights. This category was made separate from all other types of water for the purpose of being able to identify and isolate banked water transactions from other water type transactions. Banked water is the portion of allocated water that is not being used by the state or specific entity to which it had been allocated. Different banks are created for different purposes. Some are created for the purpose of reallocating water between different users. Others are created to capture and store the non-used portion of allocated water to which a state or agency is entitled. This water can then be used for groundwater recharge or for future needs. Therefore, a water bank is a centralized buying, selling, and/or storage system.

Wastewater: W is the descriptor used to describe the transactions involving the sale or lease of wastewater rights. Wastewater is water containing waste or water contaminated by waste contact, which has not yet been treated.

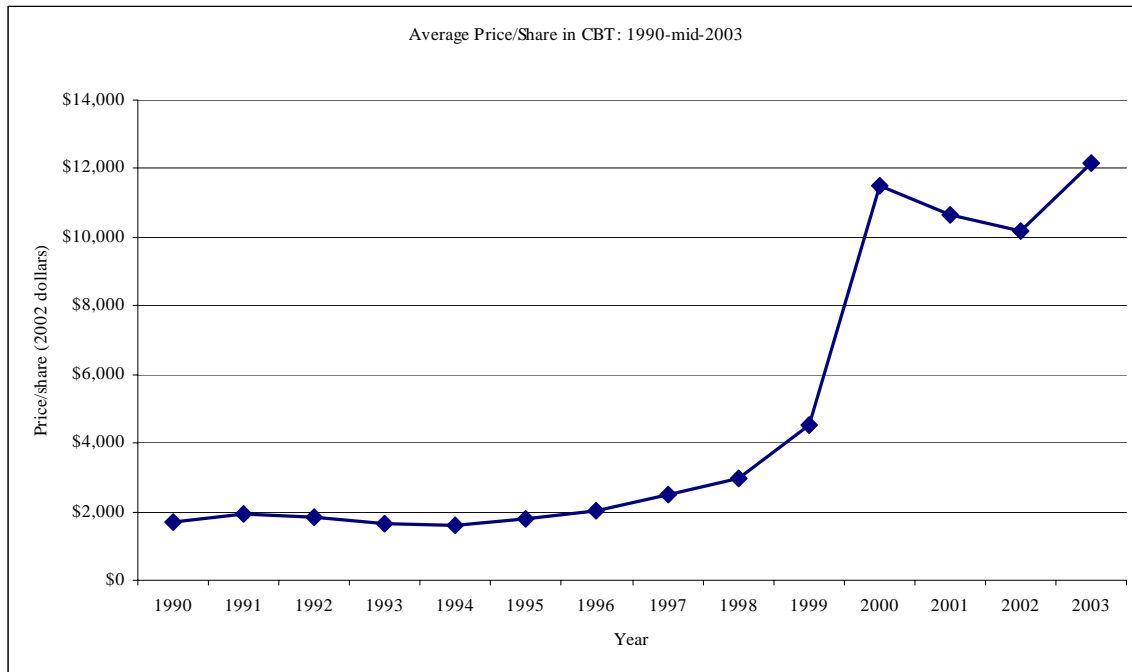
Tfr for TAPS, trf for Annex, and trf for Water Reg: Similar terms identifying entities that acquire water but do not pay a fee. In many cases cities will require developers to acquire the water resource for a new subdivision; water so acquired by the city is referred to as TAPS- Often. Tfr for Annex refers to water provided to annexed areas by the city doing the annexation.

Figure 1
Annual Number of Water Rights Sales in the Colorado Big-Thompson Project: 1990-2003

Figure 2
Average



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Number of Water Rights Sales in Nevada: 1990-2003

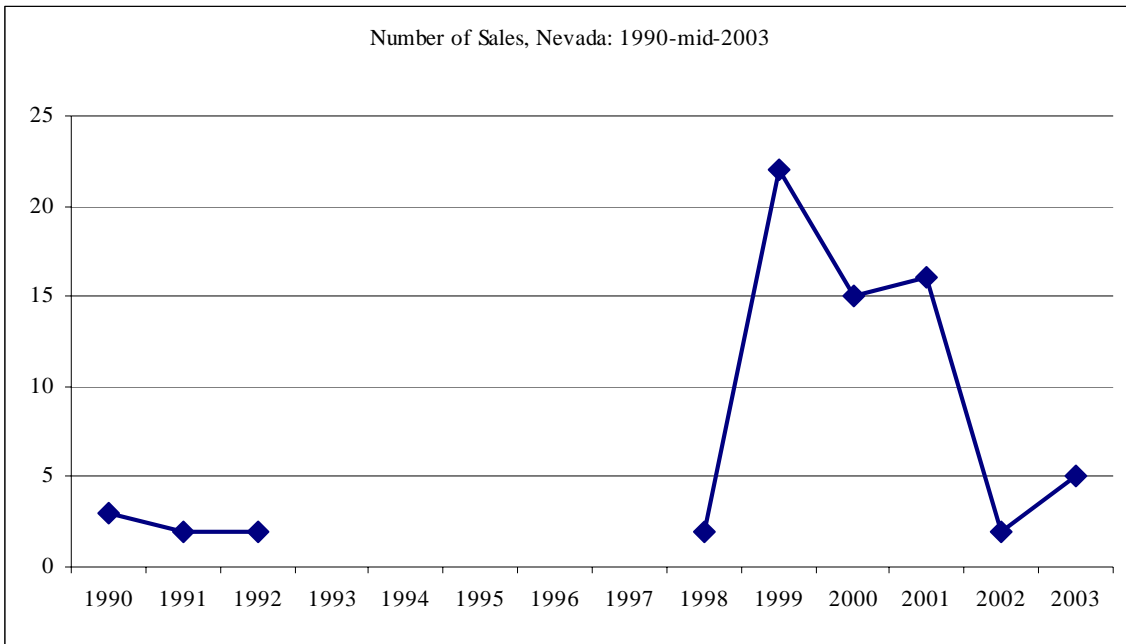


Figure 4
Average Price/A.F. for Water Sales in Nevada: 1990-2003

