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The Potential Beneficial Values of Waters Diverted in the Yampa River for the Steamboat Springs Boating Park Draft Report

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April 19, 2005
SC10613

Exh. 303 64

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Introduction and Summary

This report describes our investigation of the economic benefits associated with waters diverted in the Yampa River to support recreation in the boating park in Steamboat Springs. Order of magnitude estimates of the potential economic benefits are derived.

While the benefits estimates derived here are preliminary (e.g., we anticipate updating this report with boater visitation data collected in 2005), our results are indicative of the types of potential economic values derived by users of the boating park, and also the potential economic values realized by spectators and the greater community. These findings are based on a review of available information and published economic literature.

This report is organized as follows:

- ▶ Chapter 1 examines the economic stimulus to the local region from the boating park. It addresses employment and tax revenues from recreation to Routt County. It considers both direct and indirect impacts associated with boating park users, special event spectators, and their potential economic stimulus to the economy.
- ▶ Chapter 2 provides an overview of the river structures comprising the boating park; the types of uses (rafting, whitewater kayaking and canoeing, and tubing); and a preliminary discussion concerning levels of use.
- ▶ Chapter 3 describes the value of the course to those engaged in kayaking and related whitewater activities. We estimate direct expenditures made by users. We also summarize estimates of the user value (consumer surplus) of a kayak-related recreational outing. These consumer surplus results — derived from the published economics literature — are applied in a “benefits transfer” to estimate direct use values for the boating park. This chapter also addresses the potential benefits associated with special events, such as the Yampa River Festival.
- ▶ Chapter 4 shows a summary of potential future benefits generated from the Steamboat Springs boating park. The benefits will be revised when new information on boater use is collected in 2005.

Our results demonstrate that waters diverted in the Steamboat Springs boating park can generate considerable economic benefit. We estimate that the future annual monetary benefits potentially derived from the boating park are greater than \$7.2 million. When capitalized over 20 years at 7%, the present value of benefits are greater than \$81.4 million. This estimate will be refined when actual boater visitation data are collected for 2005. The estimate does not include several

benefits that could not be quantified or valued within the present study's constraints, leading to an underestimation of total benefits. Details are shown in Table 1.

Table 1. Estimated value of future beneficial uses of waters diverted in the Steamboat Springs' boating park (in 2005 dollars)

Beneficial use category	Level of use	Monetary unit value	Beneficial value ^d
Kayakers and canoers ^a	13,700		
Expenditures (locals and nonlocals)		\$69	\$945,300
Expenditures (nonlocals) ^b		\$150	\$1,027,500
Consumer surplus		\$41	\$561,700
Economic stimulus to community ^c			\$1,346,025
Increase in rafters	>0	>\$0	+
Increase in tubers	40,000	\$23	\$1,310,000 ^e
Special event (Yampa River Festival) ^f	22,000*		
Expenditures			\$1,137,182
Economic stimulus to community ^c			\$852,887
Nonevent spectators	>0	>\$0	+
Increase in property values			+
Community identity, quality of life			+
Option value			+
Total beneficial use values per year			>\$7.2 million
Total beneficial use values over 20 years^g			>\$81.4 million

a. Based on estimate documented for Golden. Steamboat-based estimates are anticipated via 2005-use survey.

b. Nonlocal boaters equal 25% of total boaters and include one companion.

c. 0.75 times out-of-pocket expenditures (excluding the value of travel time).

d. "+" indicates positive benefits that could not be quantified or monetized using readily available data.

e. Includes economic stimulus of 0.75 times out-of-pocket expenditures.

f. Potential special event spectators based on 100% of 2004 Teva event in Vail.

g. Over a time horizon of 20 years and a discount rate of 7%.

1. Economic Stimulus to the Local Region

1.1 Value of Recreation and Tourism in Colorado

Outdoor recreation is an important activity nationwide. Approximately 142 million Americans, or 68% of Americans 16 years of age and over, participated in a “human powered” recreation activity in 2003. Participation by Americans in at least one outdoor activity is up 8% over 1998, far outpacing the impact of natural population growth in the United States (Outdoor Industry Association, 2004). Recreation is particularly popular in Colorado, and as detailed below, plays a key role in the state and local economies.

1.1.1 Employment

The importance of recreation-related tourism to employment in Routt County is highlighted in Figure 1.1. These results are based on a Colorado Tourism Office (in the Office of Economic Development and International Trade) study conducted by Dean Runyan Associates (2004). The Dean Runyan study found that in 2003, jobs generated by visitors traveling to and within Colorado made up 4.5% of all jobs in the state of Colorado.¹ These tourism-generated jobs are much more important, however, to Colorado’s mountain resort areas. In 2003, travel-generated jobs accounted for 27% of all jobs in Routt County (not including tourism-related jobs generated in the real estate and construction sectors).

1. Dean Runyan Associates (2004) uses the results of a Colorado visitor survey to estimate spending by travelers. Spending on air travel in Colorado was estimated using data from the Bureau of Transportation Statistics. Spending by visitors staying in hotels, motels, resorts, and private campgrounds was estimated using a ratio of total travel spending to spending on lodging, where total spending on lodging is estimated using applicable state and local tax receipts. Spending by visitors to public campgrounds and private homes is estimated using survey results on daily spending by visitors in each category. Spending by visitors to vacation homes is based on an “inventory of vacation homes (2000 U.S. Census) expenditure survey data of vacation home visitors that made trips of 30 days or less.”

Once total travel spending is estimated, travel earnings are estimated using payroll-to-receipts ratios derived from the 1997 Economic Census and earnings data from the Bureau of Economic Analysis; and travel employment is estimated using wage data from the Colorado Department of Labor and the Bureau of Economic Analysis. Local tax receipts generated by travel are estimated as a percentage of “local lodging taxes, sales taxes, and other local taxes applicable to traveler purchases (e.g., automobile rentals).” State tax receipts generated by travel are estimated as a percentage of “state sales taxes, gasoline taxes, and income taxes on travel-generate earnings and business income.”

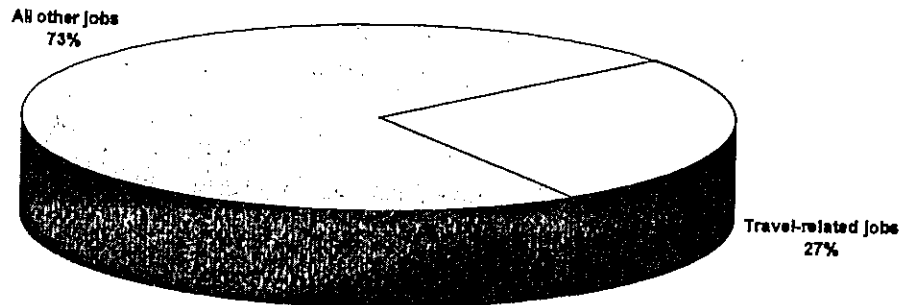


Figure 1.1. Tourism-related jobs as a percentage of all jobs: Routt County.

Sources: Dean Runyan Associates (2004), Colorado Department of Labor and Employment (2005).

1.1.2 Impacts on earnings, tax revenues, and employment

Recreation and tourism-related impacts on the state and local economies of Colorado extend beyond direct impacts on employment. Earnings and tax receipts are among the other important economic parameters that are boosted by recreation-related spending in Colorado's resort communities.

Further detail on the economic value of tourism-related spending is provided in Table 1.1, based on data from the Colorado Tourism Office report prepared by Dean Runyan Associates (2004). The spending categories are defined as follows:

- ▶ **Employment.** All employment associated with travel and recreation spending, including wage and salary workers and proprietors, and full- and part-time positions.
- ▶ **Earnings.** The wage and salary disbursements, earned benefits, and proprietor income of employees that receive travel expenditures; includes only the earnings that are attributed to travel expenditures.
- ▶ **Travel spending.** All purchases by travelers during their trip, including lodging taxes and other applicable local and state taxes paid by the traveler at the point of sale.

Table 1.1. Recreation and tourism-generated impacts on the economies of Colorado, and Routt County: 1999-2003 (spending in current dollars)

	1999	2000	2001	2002	2003
Colorado					
Employment (thousand jobs)	121	120	111	108	105
(% of all Colorado jobs)	5.5%	5.2%	4.8%	4.7%	4.5%
Earnings (\$M)	2,527	2,660	2,597	2,556	2,488
Travel spending (\$M)	7,486	7,884	7,639	7,534	7,533
Recreation spending (\$M)	1,129	1,171	1,138	1,133	1,125
(% of travel spending)	15.1%	14.9%	14.9%	15.0%	14.9%
Local taxes (\$M)	259	281	271	267	262
State taxes (\$M)	276	279	265	262	258
Routt County					
Employment (jobs)	3,620	3,570	3,520	3,390	3,260
(% of all Routt County jobs)	33.2%	31.7%	30.2%	28.2%	27.0%
Earnings (\$M)	93.5	98	101.4	103.8	101.6
Spending (\$M)	212.4	223.4	229.2	233.9	230.6
Local taxes (\$M)	7.5	8.0	8.3	8.3	8.2
State taxes (\$M)	5.8	6.0	6.1	6.1	6.0

Sources: Dean Runyan Associates, 2004; Colorado Department of Labor and Employment, 2005.

Note: Excludes tourism-related jobs created in the real estate and construction sectors.

- ▶ **Recreation spending.** Spending on entertainment and recreation, such as admissions to tourist attractions or artistic events; does not include accommodations, eating and drinking, food, transportation, or retail sales.
- ▶ **Local taxes.** Tax receipts collected by counties and municipalities, as levied on applicable travel-related purchases, includes lodging taxes, local sales taxes, and other local use taxes (e.g., auto rental taxes), but not property taxes.
- ▶ **State taxes.** State sales taxes, gasoline taxes, and income taxes on individuals and businesses.

As shown in Table 1.1, in 2003, the tourism-related travel industry statewide provided 105,000 jobs to the Colorado economy. Earnings for these jobs totaled almost \$2.5 billion. Total travel-related spending in Colorado in 2000 was just over \$7.5 billion. In addition, travel

spending contributed significantly to state and local taxes. Of these travel-generated taxes, a large share of the receipts accrued to local governments. In 2003, 50.4% went to local taxes, 26.7% went to state sales tax, 14.2% went to the state gas tax, and 8.6% went to state income taxes (Dean Runyan Associates, 2004).

It is important to note that these results reflect only “direct” spending effects and do not include the multiplier effect of travel spending that occurs when money spent by travelers is recirculated throughout the local economy. As detailed in Section 1.4, these multiplier effects can be significant.

1.2 Kayaking as an Emerging Recreational Asset

The Outdoor Industry Association’s (2004) report on participation in outdoor recreation highlights the continuing popularity of kayaking. The report presents the results of a 2003 survey of 4,000 people (as a representative sample of the U.S. population), in which participants were asked about their participation in 21 “human-powered outdoor recreation” activities, including kayaking.

Kayaking has been experiencing strong growth in participation in recent years. Participant and enthusiast levels for kayakers have more than doubled since the first year of the survey, which was 1998 (Outdoor Industry Association, 2004). The survey divided kayakers into three types – sea kayakers, recreation/sit-on-top kayakers, and whitewater kayakers.² Whitewater kayakers were estimated to total 1.8 million people in the United States in 2003. Of these whitewater kayaking participants, 879,000 were considered “enthusiasts” — defined as people who participated 3 or more times in 2003 as whitewater kayakers (equivalent to the top 15% of participation in the category).

Several other results from the study show that kayaking holds great potential for boosting local tourism spending in Colorado. In addition to being relatively young, kayakers tend to be among the most wealthy participant populations (Outdoor Industry Association, 2004). Fifty percent of whitewater kayakers are under 35 years of age. The mean household income reported by whitewater kayakers was \$76,000, with 26% reporting household incomes of \$80,000 or more. Finally, kayakers also tend to enjoy a variety of activities that Colorado has to offer — 73% of whitewater kayakers also bike on paved roads, 72% hike, 47% canoe, and 45% bike on dirt paths and roads (Outdoor Industry Association, 2004).

2. Due to the change in categorization starting in 2001 in which all kayakers are divided into sea kayakers, recreation/sit-on-top kayakers, and whitewater kayakers, a direct comparison of whitewater kayaking participation in 1998 compared to 2003 was not possible. Whitewater kayaking outings were reported to be 8 million in 2001, 14 million in 2002, and 5 million in 2003.

2 → 03 = 02 = drought year

1.3 The Value of Recreation and Tourism in Steamboat Springs

As discussed in Section 1.1, travel spending is an important component of the Colorado economy. It is even more important to Colorado's mountain resort towns. Table 1.1 highlights the importance of recreation and tourism-related travel to Routt County. In 2003, tourism accounted for 27% of all jobs in Routt County. In 2003, travel spending of over \$230 million provided \$101.6 million in earnings to Routt County. Significant levels of local tax receipts are also generated by tourist spending. Routt County and its cities collected an estimated \$8.2 million in 2003 from taxes generated by travel spending (Dean Runyan Associates, 2004).

1.4 The Economic Benefit of Kayaking and Other Boating Uses for the Local Economies

As detailed above, recreation and related tourism is a vital element of the economic well-being of Colorado's resort communities. The provision of quality boating opportunities through the construction of the boating course in Steamboat Springs is intended to fill an important niche in the overall tourism-related economies of the town.

Not only are kayaking and related boating activities among the fastest growing recreational activities in the nation over the last 6 years, but they also provide an excellent seasonal fit for resort communities like Steamboat Springs. The primary attraction for kayakers is relatively high stream flows, which typically occur in the late spring and early summer. The boating parks, by attracting recreational users in late spring and early summer, fill an important shoulder season for these resort towns, which have considerable tourism-related infrastructure in place that would otherwise be relatively idle at that time of year. And, to a lesser extent, the kayakers coming to the site in the latter half of the summer are a good supplement to that season's tourism base.

Tubing is a major activity during the summer months. In previous years the number of tubers has exceeded 20,000.

Increased expenditures on a recreational activity generate an economic stimulus for the community. The regional economy will be affected through a multiplier effect. The multiplier is a factor that when multiplied by new or increased expenditures (or reductions in expenditures) yields the benefits (or reductions in benefits) to the region. While we do not have precise estimates of the multiplier for kayaking and other boating uses in Steamboat Springs, some related published literature provides guidance.

Cordell et al. (1990) estimated regional economic multipliers of 2.00 and 2.03 for the total economic effects of water-based recreation expenditures on local economies. Norton et al. (1981) estimated a range of multipliers from 2.03 to 2.88 in an analysis of the total economic value of

recreational fishing. State of Colorado agencies also use similar or larger multipliers for estimating the total economic impacts of spending activities in one sector (e.g., housing or aeronautics) to the broader economy of the relevant local community or the state as a whole (e.g., airport construction-related economic impacts have been projected that imply a multiplier of slightly over 3.0).

In our calculations, we use a relatively conservative economic multiplier of 1.75, although higher multipliers could be justified. *

2. River Structures and Levels of Use

2.1 Background Description of the River Structures

The Yampa River runs through the heart of the City of Steamboat Springs (City). It is an integral element of the community, adding to its year-round appeal. The importance of the Yampa River to the City is described in the Yampa River Management Plan (2003).

In October 2001, the City constructed a hydraulic feature in the Yampa River to attract and improve the experience of recreational water uses (e.g., kayaking, canoeing, rafting, tubing). This structure is commonly referred to as "D Hole" and is just below the 13th Street Bridge. In April 2003, the City constructed another hydraulic feature called "Charlie's Hole" or "C Hole" just above the 13th Street Bridge. At this same time, improvements were made to D Hole.

These two in-channel diversion structures have attracted many users. This boating park (C and D Holes) is one of the premiere spots in the country for whitewater kayakers and canoers to perform rodeo-like acrobatic maneuvers in their boats. This type of boating is becoming more popular and becoming a more important component of the recreation economy. The structures also enrich rafting and tubing opportunities.

2.2 Types and Levels of Use

We interviewed four people knowledgeable about the City boating park. The persons interviewed are listed in Table 2.1. The interviews were conducted via telephone between March 10 and March 14, 2005.

Summary of types of boater use

The boating park is used by a variety of users. In the Spring and early Summer, flows can be high enough to support rafting, kayaking, and canoeing. In Summer and early Fall, tubing is very popular on the river given the right conditions.

Rafting user days

Commercial rafting occurs on the stretch going through the City and the boating park when flows are sufficient. Based on City records summarized in Table 2.2, rafting has been generally increasing over the 5 years spanning 2000 through 2004. In 2002, water flows were extremely low and rafting (and all boating activities) was greatly limited. In 2004, the two companies

Table 2.1. Interviewees for Steamboat Springs boating park

Person	Comment
Eugene Buchanan Publisher/Editor-in-Chief of Paddler Magazine Tele: (970) 870-1579	Expert kayaker that used the park about 40 times and visited the park another 40 times during 2004. Very familiar with river flows in cfs. Higher flows provide a better experience. One of best spots in state at high flows. Estimates 75% local and 25% out-of-town boaters. More out-of-town boaters at higher flows.
Peter Van de Carr Owner of Backdoor Sports Tele: (970) 879-6240	Expert kayaker that used the park about 30 times and visited the park another 30 times during 2004. Very familiar with river flows in cfs and posts daily values in his store. Higher flows provide a better experience. Did C&D holes at over 4000 cfs in 2003 and loved it. Estimates about 80% local and 20% out-of-town boaters. More out-of-towners on weekends. His store rents tubes for people to float river. Notes the C&D structures attract people that cycle through the structures many times per day. C&D holes add to the experience, especially those looking for more action.
Kent Vertrees Manager of Blue Sky West Tele: (970) 871-4260	Expert kayaker that used park about 25 times and visited the park another 10 times in 2004. Very familiar with river flows in cfs. Higher flows provide a better experience. Estimates about 60% local and 40% out-of-town boaters. More boaters on weekends and when flows are higher. His store rents tubes for people to float the river. Notes C&D structures are popular and people cycle through structures multiple times. His store runs raft trips through town. The C&D structures are the "big event" on the run. Professional pictures are taken at this spot and sold to clients. C&D structures are what clients talk about, that in turn, brings in more customers.
Barry Smith Owner of Mountain Sports Kayak School Tele: (970) 879-8747	Expert kayaker that used park about 100 times and visited the park another 25 times in 2004. Very familiar with cfs. Higher flows provide a better experience, up to about 2000 cfs. He runs kayak instruction lessons. About 25% of his business relates to some use of C&D structures.

reporting raft clients (i.e., Blue Sky West and Bucking Rainbow) ran about 436 guests through this stretch in May and June 2004. In looking at the Yampa River flows measured at the USGS 09239500 gauge, flows dropped below 400 after June 23, cutting the rafting season short.

Table 2.2. Rafting guest counts

Year	Period	Number of guests		
		Blue Sky West	Bucking Rainbow Oufitters	Totals
2000	Total	0	0	0
2001	May	0	2	2
	June	46	15	61
	July	0	0	0
	August	0	0	0
	Total	46	17	63
2002	May	0	0	0
	June	0	4	4
	July	0	0	0
	August	0	0	0
	Total	0	4	4
2003	May	Na	4	40
	June	Na	16	52
	July	0	0	36
	August	0	0	36
	Total	144	20	164
2004	May	7	59	7
	June	297	73 ^a	297
	July	0	0	0
	August	0	0	0
	Total	304	132	436

a. 2004 values for Bucking Rainbow need to be estimated given data were in dollars not number of guests. Given Blue Sky West charged \$34.30 per rafter in 2004 (revenue/# of guests), we estimate the May 25-29 count to be 59 (\$2,027.68/\$34.30) and the June count to be (\$2,519.05/\$34.30) 73 guests.

Source: City of Steamboat Springs.

Kayaking and canoeing user days

Whitewater kayaking and canoeing is a major use of the boating park. Boater use varies with flow, day of week, and time of day, among other factors.

We do not have historic data on the number of boaters using the boating park. It is our current plan to have such data collected during the 2005 boating season.

Although we do not have such data yet, it is clear from our interviews with people knowledgeable about the boating park that:

- ▶ The number of boaters in the boating park increases with flow, holding all other factors constant. Use also tends to increase on the weekends and holidays, and during warm weather, among other factors.
- ▶ The increase in boaters resulting from increased flow comes both from more intensive use by local boaters and from an influx of out-of-town boaters attracted to the features of the boating park. Out-of-town boaters (e.g., from the Colorado front range) have multiple options in selecting where to boat (i.e., substitutes). They are more likely to travel to the Steamboat Springs boating park when flows are higher.
- ▶ Higher flows provide boaters with higher-value experiences. Higher flows increase the types and magnitudes of rodeo-like maneuvers that boaters can perform.
- ▶ Higher flows provide spectators with higher-value experiences.

These observations are not only consistent with the four people interviewed, but are consistent with previous findings concerning other Colorado boating parks. Previously, we analyzed the use of new boating parks in Golden (Stratus Consulting, 2000) and in the Town of Breckenridge and the Town of Vail (Stratus Consulting, 2002). These studies all showed the number of boaters increased with increasing flows within the claimed amounts.

The Golden study estimated that the number of boaters using their boating park ranged from 13,170 to 13,709 per year. The boater use estimates for Steamboat Springs are likely to be similar. Steamboat has flows that are similar in magnitude to Golden, substantially higher than those experienced with the Breckenridge and Vail boating parks.

Spectator use

The boating park provides benefits beyond the direct benefits to boaters. The park is located along the Yampa River corridor and is highly visible to spectators. In fact, the boaters interviewed commented that many spectators stop and watch boaters perform at the park. This type of entertainment adds to the ambiance of Steamboat Springs as a premium outdoor recreation area. Tourism is an important element of the Steamboat Springs economy, and the boating park adds to the draw of Steamboat Springs as a destination for visitors.

The Yampa River Festival, for example, has potential to bring in a large number of out-of-town guests. This annual festival is held on a weekend in early June and includes a variety of events. The boating park is central to this festival, including the whitewater rodeo that receives the

biggest draw of spectators. We do not have data, and we do not know of an evaluation quantifying the impact of the Yampa River Festival on the Steamboat Springs economy.

We do have, however, data on the Teva Whitewater Festival/Mountain Games in Vail that includes kayakers competing in a rodeo event. This event has been held on Memorial Day weekend and in early June. This event helps the Vail economy during a non-peak period. Steamboat Springs has the potential to leverage its boating park into a similar type of event in the future.

The number of spectators estimated at the Teva event in 2001 was 2,300 (Stratus Consulting, 2002). The number of spectators has grown significantly and was estimated to be 22,000 in 2004 (Untraditional Marketing, 2004).

Key findings from detailed intercept surveys conducted for the 2004 Teva event show:

- ▶ 40% of spectators come to Vail specifically for the Teva event
- ▶ 80% go out after the event in Vail for drinks, dining, and shopping
- ▶ \$109 is the average spent on lodging per out-of-town spectator
- ▶ \$52 is the average spent on dining per spectator
- ▶ \$45 is the average spent on shopping and activities per spectator
- ▶ \$89,000 is the median household income of spectator
- ▶ 37.1 is the average age of a spectator
- ▶ 65% said the event has a very positive influence for them to return to Vail in future
- ▶ \$1,137,182 is the direct expenditures from the mix of day and overnight spectators incremental to the Town of Vail.

Tubing user days

Tubing is a major use of the Yampa River in Steamboat Springs. Table 2.3 shows commercial tubing counts from 1998 through 2004.

40% for TEVA

Table 2.3. Tubing guest counts

Year	Period	BackDoor Sports/ Rock & Roll	Blue Sky West (Buggywhips)	Lockhart	One Stop Ski Shop	High Adventure/ Bucking Rainbow	Total
1998	Total	12,983	4,352	5,902	1,873	855	26,366
1999	Total	10,337	4,268	4,239	1,493	545	21,226
2000	June	509	190	269	na	55	1,023
	July	5,595	3,292	5,211	1,009	1,343	16,450
	August	na	841	1,369	445	91	2,746
	Total	6,104	4,323	6,849	1,454	1,489	20,219
2001	June	1,300	0	128	89	234	1,751
	July	4,711	1,528	2,023	1,008	590	9,860
	August	2,542	862	774	630	252	5,060
	September	113	0	0	0	0	113
	Total	8,666	3,262	2,925	1,727	1,076	17,656
2002	June	922	142	40	272	115	922
	July	0	0	0	0	0	0
	August	0	0	0	0	0	0
	September	0	0	0	0	0	0
	Total	922	142	40	272	115	1,491
2003	June	125	8	0	13	0	146
	July	6,523	1,378	979	1,302	384	10,566
	August	2,029	484	51	558	10	3,132
	Total	8,677	1,870	1,030	1,873	394	13,844
2004	June	195	34	0	0	na	229
	July	5,882	1,325	323	1,164	na	8,694
	August	587	103	0	150	0	840
	Total	6,664	1,462	323	1,314	na	8126 ^a

a. 2004 total is an underestimate given Bucking Rainbow did not provide number of tubes.

Tubers used to put into the river at Rotary Park and float down to various takeouts above the James Brown Bridge. In 2001, the City forced all commercial tubers to put in below the 5th Street Bridge. This greatly decreased the length of the run and also the visibility of commercial tubing to visitors (e.g., eliminated run through Weiss Park). This has led to a drop in the number of commercial tubers. This drop in tubing was exacerbated by very low water flows in 2002.

The addition of the C and D Holes in the boating park has enhanced the remaining section of the tubing section of the river. The boating park is just above the half-way point between the 5th Street and James Brown Bridges. The C and D Holes provide the most active water features on the run. Many people tube through the C and D Holes, walk back upriver, and then run the C and D Holes again. They certainly enhance the experience and have increased tubing during a difficult period of decreased tubing for commercial outfitters.

With the addition of the boating park, we believe the commercial tubing numbers can be increased back to and exceed pre-2001 levels in the future. Without the boating park, this would be unlikely. The addition of the boating park mitigates the change in the tubing section to a shorter and less visible section. With better recognition and knowledge of the public to the change, it is reasonable to believe the number of tubers will increase.

The City estimates that the number of commercial tubers could reach 40,000 to 50,000 per year. This is based on commercial tubing companies meeting their regulated capacity limits (Yampa River Plan, 2003). In our calculations, we assume the potential number of tubers related to the existence of the boater park is 40,000. Some of these tubers may not be incremental to the boating park. Hence, this might be an overestimate. However, we note that this section of river did not receive much tubing use prior to 2001. It is only when the City pushed tubing to this lower section and added the structures that tubing increased in this section. In addition, we do not include private tubers in our calculations. The City estimates that the number of commercial to private tubes is approximately two to one. Therefore, 40,000 commercial tubers translates into 20,000 private tubers for a total of 60,000 tubers. These estimates may be refined based upon data expected to be collected in 2005.

2.3 Conclusions

The boating park is used by a variety of users and spectators. They can be divided into three groups:

- ▶ Rafting
- ▶ Kayaking and canoeing
- ▶ Tubing.

Commercial rafting occurs when flows exceed 400 cfs for 12-foot rafts. When flows exceed 800 cfs, 14-foot rafts are also permitted. Rafting is a growing business on this section of river. A total of 436 paying customers were reported to the City in 2004.

Kayaking and canoeing are major users of the boating park. The number of participants using the park is unknown. We expect the total number of boater days in the future to compare to Golden

— about 13,700. We anticipate collecting data in 2005 to get a more precise understanding of use.

Special events have the potential to generate a large number of out-of-town visitors during the May and June non-peak season (i.e., this is a shoulder season between the high use winter skiing and summer tourism seasons). The Teva event held in Vail is reported to generate up to 22,000 spectators. These spectators tend to be affluent and spend up to \$206 per day per spectator on lodging, dining, shopping, and activities. The total direct expenditures of spectators incremental to the Town of Vail were estimated to be \$1,137,182 in 2004. These are direct out-of-pocket expenditures and do not include any economic multiplier effect.

Commercial tubing has seen a general decline in use since 2001, largely related to a major change in the section of the river that can be run, and also to less than ideal flows especially in 2002. The boating park is a major feature in the revised and shortened stretch used for commercial tubing. The potential increase in tubing in this section could be as high as 40,000 tubers per year.

3. Value of Boating Park to Users and Spectators

Instream recreational uses of water can be highly valuable. These instream values accrue not only to those engaged in recreational activities, but also provide value to spectators and for the local and regional economy. This chapter looks at benefits derived from the Steamboat Springs boating park to specific user and spectator groups. The next chapter calculates their aggregate role in the larger economy.

The total value of the boating park to users has two components: (1) what people actually pay in going to the park (e.g., equipment costs), and (2) what they would be willing to pay over and above what they currently pay. The first component of value can be represented simply by the expenditures incurred. The second component requires more explanation. Consumers purchase products in the marketplace because they are better off with the products than they were with the money needed to obtain the products (or whatever else they would have purchased with the money). If that were not true, goods and services would not be exchanged through free will in the marketplace. Similarly, recreational site visits cost money and time, and recreationalists would not undertake visits unless the visits yielded net benefits. Those net benefits are referred to by economists as “consumer surplus,” and are measured as willingness to pay (WTP).

This chapter is divided into four subsections. In Section 3.1, an estimate of user expenditures is developed. Our figures account for kayak equipment and other costs. In Section 3.2, we show WTP “unit values” obtained from the peer reviewed economics literature. In Section 3.3, we summarize the estimated use of the boating park (from Chapter 2) and combine this information with the valuation estimates to calculate the value of this use to boaters and others who use the Steamboat Springs boating park. In Section 3.4, we also quantify the potential impacts from spectator events (i.e., Yampa River Festival), based on inferences from the Teva Whitewater Festival/Mountain Games in Vail.

3.1 Direct Expenditures

We conducted a preliminary assessment of the costs that might be typically incurred by a kayaker visiting the boating park. We considered three cost items: kayak equipment, automobile, and travel time.

Table 3.1 shows our cost calculation for kayak equipment. We estimate the cost of purchasing a typical set of new kayak equipment to be about \$2,000. This estimate is based on a detailed review of prices including a kayak, paddle, helmet, dry top, life jacket, spray skirt, booties, gloves, and throw rope (Stratus Consulting, 2000; personal communication with Barry Smith who runs a store in Steamboat Springs selling kayaks). We amortize the equipment costs over three to five years and assume the equipment is used on average 15 to 20 days per year. This leads to an average equipment cost ranging between \$20 and \$44 per user day. The midpoint of this range is \$32 per user day that we use for our calculations.

Table 3.1. Cost of kayaking equipment (2005\$)

Kayak gear purchase cost	Useful life (years)	Average user days/year	Gear days over useful life	Kayak gear cost per user day
\$2,000	5	20	100	\$20
\$2,000	4	20	80	\$25
\$2,000	3	20	60	\$33
\$2,000	5	15	75	\$27
\$2,000	4	15	60	\$33
\$2,000	3	15	45	\$44

The other two cost components we considered relate to travel costs. Table 3.2 shows automobile costs for roundtrip distances of 20, 65, and 200 miles using the federal reimbursement rate of \$0.375 per mile. We assume 75% of the boaters using the boating park are local to Routt County with an average roundtrip travel distance of 20 miles. We assume 25% are outside Routt County with an average roundtrip travel distance of 200 miles. The 75%/25% split between locals and out-of-town boaters is consistent with the results of our interviews of four people knowledgeable about the boating park, and also consistent with results derived from our research of Vail and Breckenridge boating parks. The 200 mile estimate for out-of-town boaters considers most boaters will come from the front range (about 300 miles roundtrip from Denver to Steamboat Springs). The composite average roundtrip travel distance for all users is estimated to be about 65 miles.

Table 3.2. Automobile costs to travel to kayak course (2005\$)

Average round trip miles to whitewater courses	Auto cost per mile ^a	Auto cost ^b
20	\$0.375	\$7.50
65	\$0.375	\$24.38
200	\$0.375	\$75.00

a. Equals the federal reimbursement rate as of January 1, 2004.

b. Equals round trip miles multiplied by the cost per mile.

Studies of recreational expenditures and travel costs also typically include the opportunity cost (value) of travel time in the estimation process (time spent on site also might be included). Assuming an average 50 miles per hour travel rate (including stop signs, etc.), the average travel time given a 65 mile round trip is 1.3 hours. We use a \$10 per hour value to reflect this travel time cost, which translates into a \$13 travel time cost per visit. The total cost from the kayak equipment, automobile, and travel time cost components is about \$69 per visit (\$32.00 + \$24.38 + \$13.00).

Tubing expenditures consist of \$13 for a tube rental. We do not include travel expenditures for people that tube as tubing is not always the primary reason people visit Steamboat Springs.

3.2 Consumer Surplus

The method of "benefits transfer" is a standard practice used by resource economists to obtain quick approximations of value when there is no opportunity to undertake primary research by administering a new survey or econometric model. Benefits transfer is conducted by obtaining values per unit of use for similar types of activities from studies conducted in similar locations. Then, those unit values are multiplied by the amount of use. A unit value typically might be the consumer surplus value for an activity such as a fishing day or a hiking trip.

We conducted a benefits transfer using recent, peer-reviewed recreational valuation literature. One set of unit values per day of kayaking was obtained from a 1999 database compiled by John Loomis, a professor of economics at Colorado State University and an expert in valuing environmental amenities. This database is a "meta-analysis," which is an amalgamation of many individual studies to develop an estimate of central tendency. Meta-analysis is used to exploit and combine the strengths of multiple studies that use different valuation methods, and to avoid being misled by a single potential outlier study. These user day values reflect the availability of substitute sites for the recreationalists.

Typically, two types of valuation methods are used in the literature, and in the Loomis database: (1) revealed preference (RP) methods such as travel cost models, which use observed recreational behavior to infer values; and (2) stated preference (SP) methods such as contingent valuation, which ask people to state their values or their willingness to trade off different resource commodities. Carson et al. (1996) demonstrated that estimates of use values do not vary substantively whether RP or SP methods are used.

The Loomis database reports values for five regions of the United States. The values used in this report are taken from the values listed for the "Intermountain" region because they apply directly to Colorado. This region had six studies on floatboating, which includes kayaking, rafting, and

sailing. The mean value per person per day for the "Intermountain" region is \$43.22, in 2005 dollars. For comparison, Loomis found the national average to be \$35.80, in 2005 dollars.¹

The recreation values summarized in the Loomis database are generally consistent with summary values obtained in other analyses, such as Walsh et al. (1980). This study, using the contingent valuation method, found kayaking values on the Crystal, Roaring Fork, and Yampa rivers (all in Colorado) to be \$38.58 in 2005 dollars per person per day. In the same study, rafting on these same rivers was valued at \$33.37 per person per day. Thus, we may deduce that, in general, kayaking is a more highly valued activity than rafting. Accordingly, the Loomis value for floatboating may be an underestimate, since it includes kayaking and rafting together. Nonetheless, the Loomis estimate is used as an upper bound in our analysis.

Another study focused on kayaking in the West found that the average user day value for kayaking on the Colorado River is \$72.83, in 2005 dollars (Bishop et al., 1989). However, we do not apply this value to the Steamboat Springs boating park because the Colorado River is considered to be a unique resource in the United States and, thus, values for use of this special amenity may be higher than those for similar activities at other sites.

Therefore, for the purposes of this study, we use a range of \$38.58 to \$43.22 per person, per activity day, as the value of kayaking (in 2005 dollars). The midpoint of this range is about \$41 that we use in our calculations.

We note that this consumer surplus serves as an average estimate. Based on our interviews and previous research, consumer surplus increases with increases in flow. Boaters are more likely to come from longer distances more frequently when higher flows improve the experience.

We do not have any specific studies on tubing. In this analysis, we use a consumer surplus value of \$10. This is likely a conservative (low) estimate, given the higher values found in the available empirical literature for other water-based recreational activities (e.g., for swimming or floatboating).

3.3 Total Use Values

As described in Chapter 2, we anticipate obtaining data on boater use for the 2005 season. At this point, we make an estimate of possible use based on experiences at Golden. We focus on kayakers and canoers using the boating parks. Rafting is growing in its importance and the C and

1. Values updated to 2005 dollars using Consumer Price Index, U.S. Department of Labor, Bureau of Labor Statistics.

D Holes add to the demand for this service. In a similar manner, the C and D Holes also have a positive impact on tubing.

For the Steamboat Springs boating park, we use 13,700 kayakers and canoers per year. This estimate represents boaters that come exclusively or primarily to the boating park to paddle. We anticipate that a more precise figure will be generated when actual observations in 2005 become available.

To obtain the recreational use value of the boating parks, the user days are multiplied by the sum of expenditures and consumer surplus.

For kayakers and canoers, we use the average estimate of \$69 per person for daily expenditures, which reflects kayak, automobile, and travel time costs. Added to this is the consumer surplus realized by each kayaker of \$41 per outing. Thus, the total willingness to pay recreational value per outing is \$110 (2005 dollars). Multiplying the estimated number of boater days by the value per outing yields a total recreational beneficial use of \$1,507,000 per year.

For tubing, we use an average estimate of \$13 per daily expenditures and \$10 for consumer surplus. Thus, the total willingness to pay is \$23. Multiplying the estimated number of tubing days by the value per outing yields a total recreational beneficial use of \$920,000.

These values do not include benefits to spectators.

3.4 Beneficial Value of Special Events

Special events held at boating parks can generate other economic benefits besides ones that accrue to participants. The Yampa River Festival has potential to bring in a large number of out-of-town guests. This annual festival has historically been held in early June and includes a variety of events. The boating park is central to this festival, including the whitewater rodeo that receives the biggest draw of spectators. We do not have data and we do not know of an evaluation quantifying the impact of the Yampa River Festival on the Steamboat Springs economy.

To illustrate the upside potential of special events, we can look at the Teva Whitewater Festival / Mountain Games in Vail that includes kayakers competing in a rodeo event. It can be argued that the Steamboat boating park is similar if not superior to the Vail boating park for performing rodeo moves.

The Teva event has been held on Memorial Day weekend and in early June. The main rodeo event is held in Vail's boating park that is located near the center of town. The boating park consists of three control structures along approximately 300 feet of the existing channel. The

structures were constructed in October and November 2000. Twenty professional kayakers competed in the feature events of the TEVA 2001 Whitewater Festival. Of these 20, five were Colorado residents — one was a Vail resident and four came from other Colorado towns. Ten competitors traveled to Vail from other U.S. states, including California, Montana, New Mexico, North Carolina, Oregon, Utah, and Washington. There were five international competitors — three from Canada, one from England, and one from Costa Rica. The spectator audience was estimated to be 2,300.

According to a survey of 2001 Teva spectators conducted on behalf of the Vail Valley Tourism and Convention Bureau by RRC and Associates:

- ▶ 67% came to Vail specifically for the Teva Whitewater Festival.
- ▶ 47% came from outside Eagle County, and 26% of these visitors spent at least one night in the area.
- ▶ Those staying overnight stayed an average of 3 days, and 30% stayed 4 nights or more.
- ▶ The average Saturday spectator spent a total of \$133 for food, lodging, and shopping. Therefore, the festival generated over \$305,000 in spending by spectators alone at the Saturday competition alone.

The 2001 boating festival provided valuable regional and national exposure to Vail. The event was marketed heavily in Colorado's print and electronic media and had several promotional tie-ins with local businesses. In addition, radio station Q106.5 in the Quad Cities (of Iowa and Illinois) highlighted the festival and conducted a contest to win a Vail rafting trip. The biggest exposure, however, was provided by FOX Net Sports, which prepared a one-hour program on the kayaking competition. This program was aired a confirmed 13 times in seven of Fox's major markets across the United States (Detroit, Pittsburgh, Midwest, Los Angeles, San Francisco Bay Area, Rocky Mountain Region, and Florida).

The Teva event has expanded and grown over time and now includes professional and amateur athletes competing in six sports and ten disciplines including: freestyle and extreme kayaking, kayak and raft paddlecross, bouldering, speed and dyno climbing, mountain bike trials, cross country racing and the Vail Hill Climb, trail running championships, and the GNC adventure sprint race. Kayaking is the center of the event including the Dagger Kayak PaddleCross — where boaters race against the clocks down class IV rapids, to the most skilled boaters competing in the Paddler Magazine Extreme Creek Race. Additionally kayakers compete in the "8" Ball which is comparable to "American Gladiators" — boaters sprint 200 meters down river while over coming human obstacles. The Teva Pro Kayak Rodeo is another event where boaters get to show off their moves in front of both the judges and the crowd. Lastly, is the East vs West Amateur Kayak

Rodeo that places top male and female boaters from the Golden and Vail rodeos against each for the "Battle of Water Rights."

This event helps the Vail economy during a non-peak period. The number of spectators estimated at the Teva event in 2004 was 22,000 (Untraditional Marketing, 2004). Key findings from detailed intercept surveys conducted of spectators of the 2004 Teva event show:

- ▶ 40% of spectators come to Vail specifically for the Teva event
- ▶ 80% go out after the event in Vail for drinks, dining, and shopping
- ▶ \$109 is the average spent on lodging per out-of-town spectator
- ▶ \$52 is the average spent on dining per spectator
- ▶ \$45 is the average spent on shopping and activities per spectator
- ▶ \$89,000 is the median household income of spectator
- ▶ 37.1 is the average age of a spectator
- ▶ 65% have say event has a very positive influence for them to return to Vail in future.

A study of the Teva event calculates that the direct expenditures from the mix of day and overnight spectators incremental to the Town of Vail for the Teva event in 2004 was over \$1.1 million. When a 1.75 economic multiplier effect is taken into consideration, the value is \$1.9 million per year.

4. Preliminary Estimate of the Beneficial Value of the Steamboat Springs Boating Park

Table 1 in the Introduction and Summary shows a summary of potential future benefits generated from the Steamboat Springs boating park. The benefits will be revised when new information on boater use is collected in 2005.

Annual direct expenditures from equipment, automobiles, and travel time for kayakers and canoers are \$945,300. The direct expenditures related to nonlocals staying in Steamboat Springs is estimated to be \$1,027,500; we use a \$150 per day per person estimate that is below typical values estimated for mountain resort communities.

Applying the multiplier of 1.75 to the out-of-pocket expenditures of \$56 per boater day (excluding the value of travel time) and nonlocal expenditures related to lodging, dining, and shopping, we obtain an incremental economic stimulus value of \$1,346,025 per year. The net impact on the local economy beyond direct expenditures is obtained by reducing the multipliers by 1.0 (to 0.5 and 1.00).

Direct expenditures related to tube rentals can potentially be \$520,000. Consumer surplus values would be \$400,000. The indirect economic stimulus would be \$390,000. Total economic impacts from tubing would be \$1,310,000.

We do not quantify any additions related to the increase in rafting from the boating park. The contribution from this growing activity could be significant in the future.

We do estimate a range of values related to the potential use of the boating park for special events. We assume Steamboat Springs can produce an event equal in magnitude to the 2004 Teva event in Vail. Given Steamboat Springs has the infrastructure and boating park, it is not unreasonable that Steamboat Springs can develop a special event generating spectator interest of this magnitude in the future.

The total potential benefits of the boating park are over \$7.2 million per year. When capitalized over 20 years at 7%, the present value of benefits are greater than \$81.4 million.

Other economic and nonpecuniary benefits can be generated in Steamboat Springs and surrounding vicinities because of the waters diverted in the boating park. These likely benefits include nonevent spectators, enhancement of local property values, improved community identity and quality of life, and option values.

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