

Economic Contributions of Outdoor Recreation on the Colorado River & Its Tributaries

Prepared for:

Protect The Flows



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Executive Summary

In 2011, a random household survey of residents in Colorado River-basin states was conducted by phone to estimate recreational activity that occurred along or on the Colorado River and its tributaries (River) in the past year. These participation estimates were then matched with recreational expenditure data and analyzed using the IMPLAN economic modeling system to estimate the economic contributions within the range states. This study was conducted for Protect The Flows, a non-profit business-oriented association focused on water management issues in the Western U.S.

Recreation along the River, either on the water directly or along the banks, is a major source of economic stimulus for the Rocky Mountain region. In the six states that make up the Colorado River and its tributaries – Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming – nearly 4 out of ten adults (38.9%) use the river at least once a year for recreational purposes. Overall, 5,633,280 people over the age of 18 are estimated to use the river annually for recreation. Table E-1 shows the most popular activity is simply picnicking or relaxing along the water, with 24.3% of the population enjoying this activity, followed by trail activities (21.6%; hiking, jogging, trail running, etc.), wildlife watching (18.9%), camping (18.0%), fishing (16.4%), water sports (15.6%; canoeing, kayaking, tubing, etc.), bicycling (6.3%), snow sports (5.8%) and hunting (4.0%).

Colorado provides the largest share of the River's recreational activity, with over one million participants annually, followed by Arizona and Utah. These three states also receive the greatest level of economic impacts, followed by Nevada, Wyoming and New Mexico. In total, recreational activity along the river generates \$17.0 billion in retail sales (Tables E2 and E3). These sales include not just recreational equipment, but also include travel expenses (restaurants, lodging, fuel and transportation, etc.), apparel, maintenance and repair of equipment, and more.

These expenditures then stimulate jobs, tax revenues and other benefits for the state and regional economies. The total value of all rounds of spending resulting from recreational expenditures totals \$25.6 billion. Colorado has the largest amount of economic activity with \$9.6 billion, and New Mexico is at the other end, with a very significant \$1.7 billion in annual economic activity. Total jobs in the region exceeded 234,000. The unemployment rates in each state examined would increase by approximately 2% (Arizona) to over 8% (Wyoming) if recreational activity along the River ceased and participants did not spend their dollars elsewhere. Considering the condition of state and federal budgets, business activity resulting from River-oriented recreation generated more than \$1.6 billion in federal taxes annually and an additional \$1.6 billion in state and local tax revenues. The businesses and employees who directly or indirectly benefit from Colorado River recreation earn \$10.4 billion annually in earnings, salaries and wages.

The magnitude of these impacts is impressive. The retail sales, if representing the revenues for a specific company, would rank that company at #155 in the 2011 Fortune 500. The jobs generated would rate it as the 19th largest employer in the 2011 Fortune 500. Additional comparisons are provided within the report.

Table E-1: Recreational Participation along the Colorado River and its Tributaries

	Trail Activities		Bicycling		Camping		Picnicking		Snow Sports		Water Sports	
	%*	Participants	%*	Participants	%*	Participants	%*	Participants	%*	Participants	%*	Participants
Arizona	19.0%	903,726	4.1%	193,673	12.7%	604,844	24.9%	1,185,151	1.9%	89,641	15.7%	750,157
Colorado	27.4%	1,040,776	11.4%	431,943	26.0%	990,338	24.6%	935,120	11.4%	433,139	14.7%	557,678
Nevada	17.0%	345,303	4.7%	94,791	12.0%	243,554	20.1%	409,456	4.4%	90,547	17.1%	347,251
New Mexico	20.3%	312,206	5.6%	86,951	15.3%	235,193	23.9%	367,633	6.3%	96,873	12.3%	190,243
Utah	22.8%	432,353	4.2%	78,601	21.8%	412,582	26.1%	494,256	4.2%	80,040	17.8%	336,957
Wyoming	22.0%	94,398	5.8%	24,789	26.9%	115,214	29.1%	124,567	10.1%	43,226	18.0%	77,140
TOTAL	21.6%	3,128,762	6.3%	910,749	18.0%	2,601,724	24.3%	3,516,182	5.8%	833,466	15.6%	2,259,426

% refers to percent of the statewide adult population that participates in the activity.

Table E-1 (continued): Recreational Participation along the Colorado River and its Tributaries

	Hunting		Fishing		Wildlife Watching	
	%*	Participants	%*	Participants	%*	Participants
Arizona	2.6%	121,489	10.3%	492,323	19.4%	923,538
Colorado	6.2%	234,736	24.5%	932,252	18.9%	720,224
Nevada	1.1%	22,405	11.5%	234,393	14.8%	301,259
New Mexico	3.6%	55,442	17.9%	276,037	18.2%	280,111
Utah	4.1%	77,833	16.0%	301,926	20.5%	387,247
Wyoming	15.8%	67,788	31.5%	134,851	26.8%	114,655
TOTAL	4.0%	579,692	16.4%	2,371,781	18.9%	2,727,034

% refers to percent of the statewide adult population that participates in the activity.

Table E-2: Economic Contributions of Recreational Activity along the Colorado River and its Tributaries, by State

	Direct Spending	Total Output	Labor Income	Jobs	Federal Taxes	State & Local Taxes
Arizona	\$ 3,794,644,820	\$ 5,962,031,159	\$ 2,456,958,038	53,508	\$ 381,113,296	\$ 382,744,114
Colorado	\$ 6,364,292,781	\$ 9,577,271,371	\$ 4,046,382,438	79,585	\$ 612,828,329	\$ 575,543,539
Nevada	\$ 1,996,169,031	\$ 2,888,735,494	\$ 1,178,298,209	25,329	\$ 178,425,991	\$ 180,187,640
New Mexico	\$ 1,206,132,350	\$ 1,684,428,434	\$ 666,992,155	17,129	\$ 87,937,518	\$ 103,221,063
Utah	\$ 2,089,492,177	\$ 3,351,775,769	\$ 1,347,511,505	34,100	\$ 216,737,169	\$ 211,748,071
Wyoming	\$ 1,587,748,500	\$ 2,208,194,838	\$ 741,102,520	24,681	\$ 147,681,740	\$ 155,051,134
TOTAL	\$ 17,038,479,658	\$ 25,672,437,064	\$ 10,437,244,865	234,333	\$ 1,624,724,043	\$ 1,608,495,561

Table E-3: Economic Contributions of Recreation along the Colorado River and its Tributaries, by Activity

	% of Population	Number of Participants	Direct Spending	Total Output	Total Income	Total Employment
Trail activities	21.6%	3,128,762	\$ 2,229,564,981	\$ 3,230,644,983	\$ 1,455,752,258	28,655
Bicycling	6.3%	910,749	\$ 555,260,904	\$ 801,260,188	\$ 361,687,047	7,021
Camping	18.0%	2,601,724	\$ 4,578,029,814	\$ 6,666,279,209	\$ 3,004,538,050	58,875
Picnicking	24.3%	3,516,182	\$ 750,447,842	\$ 1,106,564,506	\$ 499,642,997	9,576
Snow sports	5.8%	833,466	\$ 1,721,212,572	\$ 2,485,034,153	\$ 1,120,522,255	21,639
Water sports	15.6%	2,259,426	\$ 1,700,196,188	\$ 2,489,480,202	\$ 1,124,069,015	21,685
Wildlife-related						
Hunting	4.0%	579,692	\$ 532,404,576	\$ 891,877,474	\$ 280,300,313	8,757
Fishing	16.4%	2,371,781	\$ 1,420,217,775	\$ 1,905,006,335	\$ 408,754,689	13,207
Wildlife Watching	18.9%	2,727,034	\$ 3,247,924,874	\$ 6,096,290,014	\$ 2,181,978,241	64,918
TOTAL			\$ 16,735,259,525	\$ 25,672,437,064	\$ 10,437,244,865	234,333

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Introduction

As water levels within the Colorado River system (River) become the focus of increased management and public debate, questions have been asked about the jobs, tax revenues and other returns from current river uses. To better quantify and help understand the economic contributions from recreation, Southwick Associates was hired by Protect The Flows to measure recreational use of the Colorado River and the spending related to that use. This report summarizes the steps taken, the results, and provides discussions about the magnitude of recreational participation and economic impacts.

The study covered recreation in the six states that represent the Colorado River system's primary region: Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming. California also has part of the river basin within its extreme southern section, but based on the limited population in this area and the expected low economic contributions from Colorado River-based recreation to the State's economy, California was not included in this project. To any degree economic impacts are generated by the River within California, the results in this report are understated.

This project began with a survey to identify the percentage of the population in each state who used the River at least once in the past year for different types of recreation. The survey also collected data regarding participation levels for each type of recreation (days of participation, number of trips). Estimates of total recreation activity were matched with existing estimates of the average dollars spent per day or per trip of recreation to estimate the total dollars spent as a result of River-based recreation. Expenditure estimates were generated for each type of recreation presented here. IMPLAN input-output models for each state were then used to estimate the economic contributions created by recreational spending, including jobs, tax revenues, income and more.

The major forms of recreation along the river were identified from previous outdoor recreation research conducted on behalf of the Outdoor Industries Association. These activities, listed below, do not include motorized activities such as power boating, motorcycles and ATV's, offroad vehicles and 4x4s, and more. Likewise, expenditures for motorized equipment used for fishing, camping, etc are also minimized in this study. To the extent that motorizing recreation occurs along the Colorado River and its tributaries, and it certainly does, the economic impacts reported within are underestimated. The recreational activities included are:

- hunting;
- fishing;
- wildlife viewing and bird-watching;
- jogging, running, day-hiking, or backpacking;
- climbing ice or rock;
- bicycling; camping at a campsite, in a tent, or at a rustic lodge;
- snow sports such as snowboarding, snowshoeing, and skiing;
- water sports such as swimming, kayaking, canoeing, rafting, and motor-boating;

- and picnicking and relaxing.

As mentioned, a six-state region was identified as the geography of interest for this study (see Figure 1). The Colorado River is comprised of a large number of tributary rivers. The major tributaries were presented to survey respondents to help capture all recreation associated with the River. The specific tributaries listed in the survey were:

- Arizona (AZ);
 - "...the Colorado River, Little Colorado, Bill Williams, Gila, Salt, Verde, Santa Cruz, and San Pedro, plus any of the creeks and other tributaries that flow into these rivers."
- Colorado (CO);
 - "...the Colorado River and any of its tributaries such as the Green, Little Snake, Blue, Gunnison, Uncompahgre, Yampa, White, Delores, San Miguel, and San Juan, plus any of the creeks and other tributaries that flow into these rivers."
- Nevada (NV)¹;
 - "...the Colorado River and any of its tributaries such as the Virgin, White, Meadow Valley Wash, and Muddy River."
- New Mexico (NM);
 - "...the San Juan, Gila, Animas, and San Francisco Rivers and any of their tributaries."
- Utah (UT);
 - "...the Colorado River and any of its tributaries such as the Green, Uinta, White, Willow Creek, Lake Fork, Price, San Rafael, Fremont, Escalante, Duchesne, San Juan, Virgin, Muddy Creek, and Dirty Devil Rivers."
- Wyoming (WY);
 - "...all Wyoming lakes, reservoirs, creeks, streams, and rivers that ultimately flow into the Green River, including the Green River; this includes all water bodies within the Central Western and Southwestern Wind River Range and the Central Eastern and Southeastern Wyoming Range."

¹ Though the "NM" abbreviation actually precedes "NV" alphabetically, "Nevada" precedes "New Mexico" alphabetically, thus establishing its alphabetic priority (NV) before New Mexico (NM).

Figure 1. Colorado River and its Tributaries

Credit: <http://prints.encore-editions.com/0/500/the-colorado-river-basin-showing-the-upper-and-lower-basins.jpg>



Methods

Survey

Southwick Associates developed and refined a telephone survey in collaboration DJ Case and Delve Research (see Appendix A, Telephone Survey). Calling for this project was conducted from Seattle, Washington.

The survey was pilot tested for flow and respondent understanding among randomly selected, English-speaking adults, 18 years and older, residing in the six-state region. Survey wording was carefully and systematically scripted and tested to make every effort to acquaint the prospective respondent with:

- specific outdoor recreational activities the survey addressed; and
- specific rivers encompassed by the Colorado River and its tributaries (Delve interviewers were instructed in the proper pronunciation of river names).

A target was established to complete 175 detailed interviews among outdoor participants in each of the six states, for a total of 1,050 detailed interviews. Clearly, a number of “non-outdoor-participants” would be randomly contacted in the course of reaching this target of 1,050 outdoor participants. Formal interviewing commenced on 24 January, 2012, and concluded 12 February, 2012. Each prospective respondent was told that, for completing the interview, he or she would be entered into a drawing for one of five \$100 gift certificates. A screener question early in the survey quickly ascertained if the respondent participated in any of the outdoor activities of interest along the Colorado River and its tributaries. Outdoor participants were administered the entire questionnaire, requiring an average of seven minutes. For respondents not participating in any of the outdoor activities of interest, basic data were recorded (phone number, gender, state of residence, contact information for awarding of incentive); these respondents then were thanked and their interviews terminated.

Telephone interview statistics:

- 1,707 respondents indicated they did not participate in any of the outdoor activities of interest on the Colorado River and tributaries;
- 1,050 respondents indicated they participated in at least one of the outdoor activities offered in introductory remarks
 - The outdoor activity incidence rate thus was $1,050 / (1,050 + 1,707) = 2,757$, or 38%--a perhaps unanticipated but marquee finding of the project that nearly 4 in 10 adults in the six-state region annually participate in outdoor activity in the Colorado River and its tributaries (Table 1);
- 5,395 “hard refusals” to participate in the survey;
- 19 respondents who began but did not complete the survey.

Overall survey response was:

- 2,757 respondents divided by $(2,757 + 5,395 \text{ hard refusals} + 19 \text{ delayed refusals})$, or
- $2,757 / 8,171$, or **34%**.

Survey Response

Table 1. “Q3: We’re interested in your participation in outdoor recreational activities such as canoeing, kayaking, rafting, fishing, hunting, swimming, hiking, running, bicycling, wildlife-viewing, bird-watching, camping, picnicking, and snow sports. Over the past year from January 1, 2011 to December 31, 2011, did you participate in any such outdoor recreational activities on or along the Colorado River and tributaries in [dynamic text insert of respondent’s state of residence]? As a help in remembering, the Colorado River and its tributaries in [respondent’s state of residence] include [dynamic text insertion of CO River/tributaries description] (see Appendix A for exact question wording).

State	Q3: Over past year 2011, did you create on/along CO River?						Total
	Yes		No		Not sure		
AZ	35.0%	175	64.2%	321	0.8%	4	500
CO	44.6%	175	54.6%	214	0.8%	3	392
NV	31.0%	175	68.8%	389	0.2%	1	565
NM	36.1%	175	62.9%	305	1.0%	5	485
UT	39.2%	175	59.6%	266	1.1%	5	446
WY	47.4%	175	52.0%	192	0.5%	2	369
Region	38.1%	1,050	61.2%	1,687	0.7%	20	2,757

Though the “NM” abbreviation actually precedes “NV” alphabetically, “Nevada” precedes “New Mexico” alphabetically, thus establishing its alphabetic priority (NV) before New Mexico (NM).

Only a few respondents (20) answered “not sure” about recreating on or along the Colorado River. Prior to interviewing, the project team was unable to estimate how many might answer “not sure,” and if the number was substantial, there was concern for data leakage. To ascertain what a “not sure” response meant, these 20 received a follow-up question asking them to identify the rivers or creeks at which they recreated. Only 2 of 20 respondents offered specific place names (“Rio Grande” and “Sacramento area”), confirming that these 20 *genuinely* were unsure if they recreated on or along the Colorado River and tributaries. Moreover, the number responding “not sure” was small and did not represent data leakage.

Data Treatment

Delve Research provided DJ Case an Excel file with 1,050 completed outdoor participant cases and 1,707 non-outdoor-participant cases (total n=2,757). DJ Case imported these data into SPSS (version 20) for analysis. Most tables in the following narrative are pivot tables, generally unalterable in their existing form. However, specific participation estimates created within SPSS—notably, survey estimates expanded to the state and regional populations—were exported as Excel files for easier manipulation in Excel spreadsheets prepared by Southwick Associates that incorporated participation estimates into formulas to estimate expenditures, and ultimately, economic impact.

The following survey results are presented in the near-exact order and context that questions were asked of respondents. Such presentation takes advantage of the systematic thinking applied in survey preparation, and precisely follows question

sequence of the survey in Appendix A. See Appendix A for the wording of respondent selection sequence: salutation, introductory remarks, and Q1 (“Can we have about 10 minutes of your time to answer our questions?”).

Data Representativeness

The degree to which this dataset reasonably estimates outdoor participation across the six-state region was evaluated by comparisons with existing data. One credible and large data source is the National Survey on Recreation and the Environment (NSRE) (The Interagency National Survey Consortium, 2000-2002; Cordell, Green, and Betz, 2009). The NSRE methodology and was similar to the present study; the NSRE is a telephone survey of thousands of Americans 16 years first fielded in 1982, and last updated in 2009, requesting:

“I would like you to think about the outdoor recreation activities you took part in during the past 12 months. Include any outdoor activities you did around the home, on vacations, trips, or any other time. We are interested in a wide range of outdoor activities from walking, bicycling, and bird-watching, to camping, boating, skiing, and so forth. During the past 12 months, did you participate in [activity]”

NRSE participation estimates were compared to estimates from the present study across as many activities as lent themselves to approximate evaluation. Generally, comparisons gave support to the accuracy of the 2011 estimates (Table 2).

Table 2. Comparison of participation estimates between National Survey on Recreation and the Environment and (population 16 and older, 2000-2009, “participation last 12 months”) and the 2011 Southwick Survey (*unweighted data*) of Outdoor Recreation on the Colorado River and Tributaries (population 18 and older, “participation last 12 months”).

Activity	Study: Percent Participation	
	NSRE: U.S. Population	Southwick 2011: CO River & Tribs Region
Fishing	29.6%	17.0%
Hunting	11.5%	4.6%
Wildlife viewing	41.9%	19.2%
Jogging/running	34.5%	20.7%
Bicycling	39.2%	5.6%
Camping	24.1%	17.7%
Snow sports	25.8%	5.9%
Water sports	36.7%	15.6%
Picnicking	55.2%	24.3%

One would anticipate the 2011 regional estimates would be *smaller* (perhaps substantially so) than the national estimates because the 2011 project focused on participation within a specific geography defined by the Colorado River watershed. Such was the comparative trend observed. Lending further credibility to the 2011 data were results from a 2010 Southwick Associates project that measured participation in the Mountain Division for selected outdoor activities; this region includes Idaho and

Montana in addition to the 6-states studied in the 2011 project (Table 3). Again, anticipation would be that 2011 estimates would be *smaller* than 2010 estimates, because the Colorado River and tributaries is a smaller geography than the Mountain Division.

Table 3. Comparison of participation estimates between Southwick Associates 2010 project measuring participation in selected outdoor activities in the Mountain Division to Southwick Associates 2011 project measuring outdoor participation in selected outdoor activities in the region of the Colorado River and tributaries.

Activity	Southwick Associates Project	
	2010	2011
Trail	33.3%	20.7%
Bicycling	25.2%	5.6%
Camping	25.6%	17.7%
Snow sports	9.2%	5.9%
Water sports	7.8%	15.6%
Picnicking/relaxing	Not measured	24.3%

Proportional participation estimates for all activities in the 6-state region were smaller than in the Mountain Division (in some cases, markedly so), affirming the anticipated trend. The exception was “water sports,” with higher participation in 2010 than 2011. A ready explanation was that the 2011 project included “swimming” among the water sports about which respondents were asked, while the 2010 project did not.

As indicated earlier, only several variables were collected from non-outdoor-participants in the interests of economy and to focus on collecting participation data. However, gender was recorded for all respondents, allowing normalization of the 2011 dataset to known gender distributions for the 6 states. Variations between the known gender distributions and the Southwick 2011 dataset already were quite slight; see for example the highlighted columns in Table 4, comparing “Known gender proportion” (2010 Census) with “Southwick 2011” gender proportion. Still, gender weights were calculated for each state. Grand *totals* (e.g., percent participation, days of participation, miles traveled) for the region were calculated from individual state totals.

It must be emphasized that applying expansion weights to even basic, descriptive statistical procedures introduces extraordinary opportunity to project wildly inflated estimates. Great effort was taken to ensure that the estimates from this study were reasoned, plausible, and rational (see Appendix B for further discussion of the treatment of outliers).

Table 4. Comparison of gender distributions from 2006 Census Bureau data (National Survey of Fishing, Hunting, and Wildlife Associated Recreation), and the 2011 Southwick Survey of Outdoor Recreation, and process to create a "Gender weight."

State & Gender		Known count	Known gender proportion	Southwick 2011 proportion	Survey response	Adjusted frequency	Gender weight	Expansion weight
AZ	Male	2,343,919	.492109	.414000	207	246	1.188406	11,323.282126479700
	Female	2,419,083	.507891	.586000	293	254	.866894	8,256.257500377950
	Total	4,763,003	1.000000	1.000000	500	500		
CO	Male	1,893,188	.497737	.448980	176	195	1.107955	10,756.748731205100
	Female	1,910,400	.502263	.551020	216	197	.912037	8,844.444085279190
	Total	3,803,588	1.000000	1.000000	392	392		
NV	Male	1,023,158	.502646	.484956	274	284	1.036496	3,734.152022422540
	Female	1,012,385	.497354	.515044	291	281	.965636	3,478.987195231320
	Total	2,035,543	1.000000	1.000000	565	565		
NM	Male	753,092	.488860	.443299	215	237	1.102326	3,502.754818531650
	Female	787,415	.511140	.556701	270	248	.918519	2,916.353380584680
	Total	1,540,508	1.000000	1.000000	485	485		
UT	Male	940,984	.497123	.414798	185	222	1.200000	5,086.400000000000
	Female	951,875	.502877	.585202	261	224	.858238	3,647.028741125000
	Total	1,892,859	1.000000	1.000000	446	446		
WY	Male	217,661	.508288	.425474	157	188	1.197452	1,386.375530702130
	Female	210,563	.491712	.574526	212	181	.853774	993.222181005525
	Total	428,224	1.000000	1.000000	369	369		
Region	Male	7,172,002	.495861	.440334	1,214	1,372	States	States
	Female	7,291,722	.504139	.559666	1,543	1,385	States	States
	Total	14,463,724	1.000000	1.000000	2,757	2,757	States	States

"Known count," U.S. Census Bureau, 2012; residents 18 years & older by gender by state and region, 2010 Census
 "Known gender proportion," U.S. Census Bureau, 2012, residents 18 years & older by gender by state and region, 2010 Census
 "Southwick 2011 proportion," gender distribution, ratio of adults 18 years and older by gender by state and region
 "Survey response" is count of survey respondents by gender by state
 "Adjusted frequency" = ("Known gender proportion * Total respondents from each state or Region)
 "Gender weight" = ("Adjusted frequency") / ("Survey response by state")
 "Expansion weight, solved for X using proportional analysis: ("Gender weight"/"Adjusted frequency") = (X/"Known count")
 "States" indicates regional totals were calculated from state sub-totals

First, data normalized with gender weights (Table 5a) were compared and confirmed with known gender proportions in Table 4 (with slight differences observed due to rounding) and then data tabulated with expansion weights (Table 5b) were compared and confirmed with known gender counts in Table 4 (again, small rounding differences).

Table 5a. Gender distribution normalized with gender weights (see Table 4).

State	Q2: Gender				
	Male		Female		Total
AZ	49.2%	246	50.8%	254	500
CO	49.7%	195	50.3%	197	392
NV	50.3%	284	49.7%	281	565
NM	48.9%	237	51.1%	248	485
UT	49.8%	222	50.2%	224	446
WY	50.9%	188	49.1%	181	369
Region	49.8%	1,372	50.2%	1,385	2,757

Table 5b. Gender counts calculated with expansion weights (see Table 4).

State	Q2: Gender				
	Male		Female		Total
AZ	49.2%	2,343,919	50.8%	2,419,083	4,763,003
CO	49.8%	1,893,188	50.2%	1,910,400	3,803,588
NV	50.3%	1,023,158	49.7%	1,012,385	2,035,543
NM	48.9%	753,092	51.1%	787,415	1,540,508
UT	49.7%	940,984	50.3%	951,875	1,892,859
WY	50.8%	217,661	49.2%	210,563	428,224
Region	49.6%	7,172,002	50.4%	7,291,722	14,463,724

Screener Question Discussion

Revisiting the screener question (Q3) is appropriate now that discussion has explained the normalized/weighted dataset. Specifically, the 39% of six-state region residents that indicated they participated in outdoor recreation on or along the Colorado River and tributaries (Table 6a) translates to 5.6 million outdoor recreationists (Table 6b).

On a percentage basis, highest participation along the Colorado River was reported by Wyoming residents (48%), though based on state population, the actual number of Wyoming users was the least within the six-state region. Proportionally, nearly as many Coloradans (46%) reported recreating on or along the Colorado as Wyoming residents, and because of Colorado's relatively large population, the number of Colorado state residents using the River and tributaries was the highest in the six-state region. Lowest participation was reported by Nevadans, though still a notable 31% involvement.

Table 6a. "Q3: We're interested in your participation in outdoor recreational activities such as canoeing, kayaking, rafting, fishing, hunting, swimming, hiking, running, bicycling, wildlife-viewing, bird-watching, camping, picnicking, and snow sports. Over the past year from January 1, 2011 to December 31, 2011, did you participate in any such outdoor recreational activities on or along the Colorado River and tributaries in [dynamic text insert of respondent's state of residence]? As a help in remembering, the Colorado River and its tributaries in [respondent's state of residence] include [dynamic text insertion of CO River/tributaries description] (see Appendix A for exact question wording). *Weighted sample.*

State	Q3: Over past year 2011, did you recreate on/along CO River?						
	Yes		No		Not sure		Total
AZ	36.1%	181	63.0%	315	0.8%	4	500
CO	45.7%	179	53.5%	210	0.7%	3	392
NV	31.3%	177	68.6%	387	0.2%	1	565
NM	36.6%	177	62.5%	303	1.0%	5	485
UT	40.6%	181	58.3%	260	1.1%	5	446
WY	48.1%	178	51.3%	189	0.6%	2	369
Region	38.9%	1,072	60.4%	1,665	0.7%	20	2,757

Weighting by gender resulted in expected slight variations from the raw state and region frequency distributions, with a net effect of 1,072 outdoor participants (38.9%) within 2,757 weighted respondents versus 1,050 outdoor participants (38.1%) within 2,757 unweighted respondents.

Table 6b. “Q3: We’re interested in your participation in outdoor recreational activities....”
Projections to state and region populations.

State	Q3: Over past year 2011, did you recreate on/along CO River?						
	Yes		No		Not sure		Total
AZ	36.1%	1,720,877	63.0%	3,002,966	0.8%	39,159	4,763,003
CO	45.7%	1,739,008	53.5%	2,036,134	0.7%	28,446	3,803,588
NV	31.3%	636,381	68.6%	1,395,683	0.2%	3,479	2,035,543
NM	36.6%	563,138	62.5%	962,202	1.0%	15,168	1,540,508
UT	40.6%	767,773	58.3%	1,103,971	1.1%	21,114	1,892,859
WY	48.1%	206,052	51.3%	219,792	0.6%	2,380	428,224
Region	38.9%	5,633,230	60.3%	8,720,748	0.8%	109,745	14,463,724

Table 6c. “Q3: We’re interested in your participation in outdoor recreational activities....” By gender. *Weighted sample.*

State	Q2: Gender													
	Male						Female							
	Q3: Over past year 2011, did you recreate on/along CO River?							Q3: Over past year 2011, did you recreate on/along CO River?						
	Yes	No	Not sure	Total	Yes	No	Not sure	Total	Yes	No	Not sure	Total		
AZ	43.5%	107	55.6%	137	1.0%	2	246	29.0%	74	70.3%	179	0.7%	2	254
CO	56.8%	111	42.6%	83	0.6%	1	195	34.7%	68	64.4%	127	0.9%	2	197
NV	39.4%	112	60.6%	172	0.0%	0	284	23.0%	65	76.6%	215	0.3%	1	281
NM	41.9%	99	57.7%	137	0.5%	1	237	31.5%	78	67.0%	166	1.5%	4	248
UT	48.6%	108	50.3%	112	1.1%	2	222	32.6%	73	66.3%	148	1.1%	3	224
WY	52.2%	98	47.1%	89	0.6%	1	188	43.9%	79	55.7%	101	0.5%	1	181
Region	46.3%	635	53.1%	729	0.6%	8	1,372	31.6%	437	67.6%	936	0.8%	12	1,385

Tables 6a, 6b, and 6c underscore an important reality of survey research worthy of strong emphasis; the regional population projection (Table 7b) of 5.6 million participants is expanded from 1,072 (weighted) survey respondents (Table 7a) who indicated they participated in outdoor recreation; roughly 100 males from each of 6 states, and about 75 females from each state (Table 6c)—a large sample, when taken as a whole, but a sample nonetheless. Plus, sample sizes rapidly grow smaller as the focus is tightened on specific outdoor activities such as fishing, hunting, water sports, snow sports, and other outdoor activities. An economical advantage of statistics is that projections can be made from samples—but attentiveness is warranted as samples grow ever smaller with tighter focus. Sampling tolerance for estimates at the state level (95% confidence level) is $\pm 5\%$, and region level, $\pm 3\%$.

Before proceeding through the balance of the survey, respondents who qualified as outdoor recreationists on or along the Colorado River and tributaries were reminded that the survey’s time period of interest was “*the past year from January 1 through December 31 of 2011.*” Respondents received numerous reminders of this time period of interest throughout the survey.

Selected classification or background variables were collected for outdoor participants (Table 7). It must be stressed that these distributions describe *outdoor participants* in each state and region rather than state and regional populations in general.

Table 7. Selected background characteristics of *outdoor participants*. *Projections to state and region populations.*

Characteristic (Q42, Q43, Q45)	State						Region
	AZ	CO	NV	NM	UT	WY	
Black or African American	2.9%	2.4%	4.6%	1.2%	0.5%	0.0%	2.3%
White	78.7%	83.4%	75.9%	61.3%	87.3%	89.3%	79.6%
Hispanic or Latino	7.5%	5.2%	5.2%	22.5%	1.1%	3.9%	7.0%
Asian or Pacific Islander	1.8%	0.6%	1.7%	0.0%	1.3%	0.0%	1.1%
Native American	1.6%	2.3%	1.2%	4.5%	3.3%	1.8%	2.3%
Other	2.9%	2.3%	5.2%	6.3%	2.8%	2.6%	3.3%
Refused	4.6%	3.9%	6.3%	4.1%	3.7%	2.3%	4.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	1,720,877	1,739,008	636,381	563,138	767,773	206,052	5,633,230
18-24	4.2%	1.7%	4.1%	5.0%	4.1%	1.2%	3.4%
25-34	9.9%	5.7%	13.7%	8.6%	6.0%	8.0%	8.3%
35-44	7.3%	21.7%	17.7%	14.8%	16.8%	13.3%	15.2%
45-54	16.3%	25.4%	21.5%	22.4%	28.3%	23.4%	22.2%
55-64	26.8%	26.1%	21.9%	17.3%	19.8%	26.2%	24.1%
65 or older	32.9%	17.0%	16.1%	29.1%	22.5%	26.1%	24.0%
Refused	2.6%	2.3%	5.0%	2.8%	2.6%	1.9%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	1,720,877	1,739,008	636,381	563,138	767,773	206,052	5,633,230
<\$25G	13.8%	8.1%	9.8%	21.1%	15.6%	13.0%	12.5%
\$25G to <\$50G	20.7%	12.9%	21.0%	16.8%	17.2%	21.8%	17.5%
\$50G to <\$75G	23.1%	20.0%	25.3%	20.4%	20.2%	21.8%	21.7%
\$75G to <\$100G	12.6%	12.9%	12.5%	6.4%	13.1%	14.5%	12.2%
\$100G or more	14.8%	28.7%	19.5%	22.9%	21.3%	13.5%	21.3%
Refused	15.1%	17.4%	11.9%	12.3%	12.6%	15.4%	14.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	1,720,877	1,739,008	636,381	563,138	767,773	206,052	5,633,230

Estimating Expenditures

Previous research conducted by Southwick Associates for the Outdoor Industries Association quantified trip and equipment expenditures for each type of recreation listed in this report. The exceptions were expenditures for hunting, fishing and wildlife viewing which were made available by the Association of Fish and Wildlife Agencies, the American Sportfishing Association and the U.S. Fish and Wildlife Service. These per-day expenditures were available on a regional basis (Outdoor Industries Association) and per-state for the others. The total expenditures for each state in this report were calculated by simply multiplying the average days of recreation with the appropriate number of days from the survey. Equipment expenditures are measured on an annual basis, and not on a per day basis as equipment can be used across many trips. Equipment expenditures were tabulated by matching the total number of participants by activity, per state, by the appropriate annual equipment expenditures from the sources described previously.

Economic Modeling

To estimate the economic impacts, the data were analyzed with the IMPLAN input-output model. The IMPLAN model was developed by MIG, Inc. of Stillwater, Minnesota originally for use by the U.S. Forest Service. Input-output models describe how sales in one industry impact other industries. For example, once a consumer makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the salaries and wages paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous additional rounds of purchasing. Input-output analysis tracks how the various rounds of purchasing benefit other industries and generates economic benefits.

The relationships between industries are explained through multipliers. For example, an income multiplier of 1.29 for industry X would indicate that for every dollar of income generated by the industry under study, \$0.29 would be paid to the employees of industries impacted by the indirect and induced effects. The IMPLAN model provides multipliers for all major industries in the U.S. and for each state. The IMPLAN model includes output, earnings and employment multipliers. The output multiplier measures the total economic effect created by the original retail sale. The earnings multiplier measures the total salaries and wages generated by the original retail sale. The employment multiplier estimates the number of jobs supported by the original retail sale. IMPLAN also estimates federal, state and local tax revenues.

To apply the IMPLAN model, recreational expenditures were matched to the appropriate industry sector. The resulting estimates describe the salaries and wages, total economic effects, and jobs supported by the purchases made by Colorado River recreational users. This same process is repeated for all reported expenditures for all activities, and then summed to arrive at state and regional totals.

□ *Totals presented in the tables within this report are based on number of participants multiplied by average days, average miles, or average trips are subject to apparent slight variations; these variations, however, are attributable to rounding. Average days, trips, and miles were rounded to 1 decimal place for presentation here, but extended to multiple decimal places for actual calculations of reported totals. Counts may vary slightly from table to table because of a few instances of missing data.*

Results

Participation:

Fishing

Table 8a presents the percentage and estimated number of anglers per state.

Table 8a: Number of Anglers

State	Q4: Fishing in 2011				
	Yes		No		Total
AZ	10.3%	492,323	89.7%	4,270,680	4,763,003
CO	24.5%	932,252	75.5%	2,871,336	3,803,588
NV	11.5%	234,393	88.5%	1,801,150	2,035,543
NM	17.9%	276,037	82.1%	1,264,470	1,540,508
UT	16.0%	301,926	84.0%	1,590,933	1,892,859
WY	31.5%	134,851	68.5%	293,373	428,224
Region	16.4%	2,371,781	83.6%	12,091,942	14,463,724

As with all activities examined in this effort, participation varied substantially among states. Proportions and absolute frequencies both must be examined to understand the numbers. For example, lowest proportional angling participation was report in Arizona (10.3%), but because of Arizona's relatively large population, this percentage accounted for the 2nd largest number of anglers among all states.²

Anglers were then asked number of days of 2011 participation and miles traveled (Table 8b). Colorado has the greatest level of fishing participation based on the high rate of participation and large population.

Table 8b: Fishing Frequency and Distance

State	Q5: How many days fishing?			Q6: 1-way miles traveled most recent fishing trip?		
	Anglers	* Mean	= Total days	Anglers	* Mean	= Total 1-way miles
AZ	492,323	7.2	3,534,027	492,323	103.5	50,938,606
CO	932,252	9.2	8,537,035	932,252	75.2	70,150,269
NV	234,393	11.2	2,633,381	234,393	81.7	19,153,378
NM	276,037	6.3	1,749,422	276,037	131.3	36,237,078
UT	298,279	8.5	2,542,761	298,279	124.4	37,118,237
WY	132,864	11.7	1,552,636	132,864	86.8	11,537,697
Region	2,366,148	8.7	20,549,261	2,366,148	95.1	225,135,266

(Participants) * (Mean days) = Total days

(Participants) * (Mean 1-way miles) = Total 1-way miles

Note that means are rounded to 1 decimal place resulting in "inexact" totals compared to exact totals reported, which were based on calculations up to 10 decimal places.

² More conservative estimates of statewide fishing participation are reported in the National Survey of Wildlife-Associated Recreation (USDI Fish and Wildlife Service and USDC Census Bureau, 2006)).

Hunting

Questions posed to respondents will be quoted in table titles from this point forward.

Table 9a. “Q7: In 2011, did you go hunting along the Colorado River or any of its tributaries?”
Projections to state and region populations.

State	Q7: Hunting in 2011?				
	Yes		No		Total
AZ	2.6%	121,489	97.4%	4,641,514	4,763,003
CO	6.2%	234,736	93.8%	3,568,852	3,803,588
NV	1.1%	22,405	98.9%	2,013,138	2,035,543
NM	3.6%	55,442	96.4%	1,485,066	1,540,508
UT	4.1%	77,833	95.9%	1,815,026	1,892,859
WY	15.8%	67,788	84.2%	360,437	428,224
Region	4.0%	579,692	96.0%	13,884,031	14,463,724

Table 9b. “Q8: How many DAYS did you spend hunting along the Colorado River or its tributaries?” & “Q9: On your most recent hunting trip along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?”

State	Q8: How many days hunting?			Q9: 1-way miles traveled most recent hunting trip?		
	Hunters	* Mean	= Total days	Hunters	* Mean	= Total 1-way miles
AZ	121,489	8.3	1,011,072	121,489	152.8	18,560,735
CO	234,736	9.5	2,224,735	234,736	75.0	17,613,818
NV	22,405	5.2	115,759	22,405	51.0	1,142,651
NM	55,442	9.5	526,367	55,442	148.3	8,221,698
UT	77,833	9.5	737,926	77,833	79.4	6,182,490
WY	66,794	13.6	909,545	66,794	81.3	5,432,355
Region	578,699	9.5	5,525,403	578,699	98.8	57,153,745

Wildlife Viewing

An important preface is required for wildlife viewing participation. Earlier, the enormous impact of “rare cases” on participation estimates for the population at large—say, 1 respondent answering that he jogs/walks 365 days a year—the impact of such cases was highlighted to illustrate how quickly rare events appearing in a relatively small sample and projected to the population mushroom into enormous estimates. Yet for wildlife viewing, 15 respondents said they participated in wildlife-viewing or bird-watching along the Colorado River or tributaries *365 days a year* which are plausible. Yet these instances likely do not represent trips to “go wildlife-viewing or bird-watching” and likely refer to people observing wildlife around the home and as such, were replaced with the mean days of wildlife viewing calculated in the absence of relatively extreme values (or outliers).

Table 10a. "Q10: In 2011, did you go wildlife-viewing or bird-watching along the Colorado River or any of its tributaries?" *Projections to state and region populations.*

State	Q10: Wildlife viewing/bird-watching in 2011				
	Yes		No		Total
AZ	19.4%	923,538	80.6%	3,839,465	4,763,003
CO	18.9%	720,224	81.1%	3,083,363	3,803,588
NV	14.8%	301,259	85.2%	1,734,284	2,035,543
NM	18.2%	280,111	81.8%	1,260,397	1,540,508
UT	20.5%	387,247	79.5%	1,505,612	1,892,859
WY	26.8%	114,655	73.2%	313,569	428,224
Region	18.9%	2,727,034	81.1%	11,736,690	14,463,724

Table 10b. "Q11: How many DAYS did you spend wildlife-viewing or bird-watching along the Colorado River or its tributaries?" & "Q12: On your most recent wildlife-viewing or bird-watching trip along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q11: How many days viewing/watching?			Q12: 1-way miles traveled most recent viewing/watching trip?		
	Viewers	* Mean	= Total days	Viewers	* Mean	= Total 1-way miles
AZ	923,538	11.0	10,172,828	923,538	90.8	83,823,716
CO	711,380	12.6	8,961,090	711,380	84.1	59,795,108
NV	301,259	12.5	3,757,012	301,259	87.7	26,411,191
NM	277,194	6.8	1,878,469	277,194	129.1	35,792,681
UT	387,247	14.7	5,675,104	387,247	130.7	50,600,589
WY	113,662	23.4	2,657,120	113,662	65.3	7,417,557
Region	2,714,280	12.2	33,101,624	2,714,280	97.2	263,840,842

Jogging, Running, Day-hiking, Backpacking, Climbing Ice or Rock

Beginning with questions about outdoor recreation outside of fish and wildlife-related activities, the emphasis shifted to first determining if the respondent participated in the activity (e.g., Table 11a), and if so, how many *day trips* were taken and 1-way miles traveled for the most recent day trip (e.g., Table 11b, 1st panel, Q14), and number of *overnight trips* and 1-way miles traveled for the most recent overnight trip (e.g., Tables 11, 2nd panel, Q15). This was done to match the expenditure data for these activities which were also divided into day and overnight trip expenditures.

Table 11a. "Q13: In the past year, did you participate in jogging, running, day-hiking, backpacking, or climbing ice or rock along the Colorado River or any of its tributaries?"
Projections to state and region populations.

State	Q13: Jogging, running, day-hiking, backpacking, climbing ice or rock in 2011?				
	Yes		No		Total
AZ	19.0%	903,726	81.0%	3,859,277	4,763,003
CO	27.4%	1,040,776	72.6%	2,762,812	3,803,588
NV	17.0%	345,303	83.0%	1,690,240	2,035,543
NM	20.3%	312,206	79.7%	1,228,301	1,540,508
UT	22.8%	432,353	77.2%	1,460,505	1,892,859
WY	22.0%	94,398	78.0%	333,826	428,224
Region	21.6%	3,128,762	78.4%	11,334,962	14,463,724

Table 11b. "Q14: In the past year, how many DAY TRIPS did you take IN TOTAL for running, hiking, or climbing along the Colorado River or its tributaries?" & "Q15: On your most recent DAY TRIP for running, hiking, or climbing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q14: How many day trips run/hike/climb?			Q15: 1-way miles traveled most recent day trip run/hike/climb?		
	Folks afoot	* Mean	= Total trips	Folks afoot	* Mean	= Total 1-way miles
AZ	861,500	12.1	10,390,296	861,500	74.7	64,386,669
CO	1,001,573	13.7	13,751,909	1,001,573	75.2	75,289,852
NV	341,824	13.0	4,457,427	341,824	67.9	23,201,531
NM	301,698	9.5	2,866,824	301,698	100.3	30,258,783
UT	418,533	8.5	3,572,847	418,533	111.4	46,606,363
WY	91,025	20.2	1,839,967	91,025	56.0	5,098,008
Region	3,016,154	12.2	36,879,270	3,016,154	81.2	244,841,205

Table 11c. "Q16: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for running, hiking, or climbing along the Colorado River or its tributaries?" & "Q17: On your most recent OVERNIGHT TRIP for running, hiking, or climbing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q16: How many overnight trips run/hike/climb?			Q17: 1-way miles traveled most recent overnight trip run/hike/climb?		
	Folks afoot	* Mean	= Total trips	Folks afoot	* Mean	= Total 1-way miles
AZ	411,170	2.8	1,136,558	411,170	147.0	60,450,920
CO	615,286	4.3	2,630,384	615,286	112.1	68,974,683
NV	178,125	10.1	1,794,453	178,125	108.2	19,276,569
NM	211,831	7.1	1,512,087	211,831	148.5	31,465,800
UT	302,791	4.0	1,217,302	302,791	153.0	46,321,538
WY	45,419	6.6	299,767	45,419	101.1	4,593,324
Region	1,764,623	4.9	8,590,552	1,764,623	131.0	231,082,833

Bicycling on a Paved Road or Off-Road

Table 12a. "Q18: In the past year, did you participate in bicycling on a paved road or off-road along the Colorado River or any of its tributaries?" *Projections to state and region populations.*

State	Q18: Bicycling in 2011?				
	Yes		No		Total
AZ	4.1%	193,673	95.9%	4,569,330	4,763,003
CO	11.4%	431,943	88.6%	3,371,644	3,803,588
NV	4.7%	94,791	95.3%	1,940,751	2,035,543
NM	5.6%	86,951	94.4%	1,453,557	1,540,508
UT	4.2%	78,601	95.8%	1,814,258	1,892,859
WY	5.8%	24,789	94.2%	403,435	428,224
Region	6.3%	910,749	93.7%	13,552,975	14,463,724

Table 12b. "Q19: In the past year, how many DAY TRIPS did you take IN TOTAL for bicycling along the Colorado River or its tributaries?" & "Q20: On your most recent DAY TRIP for bicycling along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q19: How many day trips bicycling?			Q20: 1-way miles traveled most recent day trip bicycling?		
	Bikers	* Mean	= Total trips	Bikers	* Mean	= Total 1-way miles
AZ	185,417	7.1	1,317,731	185,417	25.1	4,662,997
CO	399,673	16.9	6,740,659	399,673	41.8	16,702,129
NV	94,791	14.3	1,351,595	94,791	39.6	3,752,089
NM	80,532	16.3	1,309,084	80,532	91.8	7,394,140
UT	69,867	7.6	531,689	69,867	143.1	9,998,206
WY	24,789	12.1	299,974	24,789	19.3	477,347
Region	855,070	13.5	11,550,732	855,070	50.3	42,986,908

Table 12c. "Q21: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for bicycling along the Colorado River or its tributaries?" & "Q22: On your most recent OVERNIGHT TRIP for bicycling along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q21: How many overnight trips bicycling?			Q22: 1-way miles traveled most recent overnight trip bicycling?		
	Bikers	* Mean	= Total trips	Bikers	* Mean	= Total 1-way miles
AZ	70,062	1.1	78,318	70,062	126.9	8,892,454
CO	141,033	13.5	1,907,531	141,033	114.5	16,154,011
NV	40,310	6.9	276,744	40,310	56.5	2,276,084
NM	42,017	9.2	386,194	42,017	162.5	6,826,342
UT	45,107	1.5	66,989	45,107	193.0	8,706,154
WY	1,986	1.0	1,986	1,986	127.5	253,272
Region	340,515	8.0	2,717,763	340,515	126.6	43,108,317

Camping in an RV, at a Campsite, in a Tent, or at a Rustic Lodge

Table 13a. “Q23: In the past year, did you participate in camping in an RV, at a campsite, in a tent, or at a rustic lodge along the Colorado River or any of its tributaries?” *Projections to state and region populations.*

State	Q23: Camping in 2011?				
	Yes		No		Total
AZ	12.7%	604,844	87.3%	4,158,159	4,763,003
CO	26.0%	990,338	74.0%	2,813,249	3,803,588
NV	12.0%	243,554	88.0%	1,791,989	2,035,543
NM	15.3%	235,193	84.7%	1,305,315	1,540,508
UT	21.8%	412,582	78.2%	1,480,277	1,892,859
WY	26.9%	115,214	73.1%	313,010	428,224
Region	18.0%	2,601,724	82.0%	11,862,000	14,463,724

Table 13b. “Q24: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for camping along the Colorado River or tributaries?” & “Q25: On your most recent OVERNIGHT TRIP for camping along the Colorado River or tributaries, how many miles did you travel ONE-WAY to reach your destination?” [“DAY TRIPS for camping” were not estimated in this study]

State	Q24: How many overnight trips camping?			Q25: 1-way miles traveled most recent camping trip?		
	Campers	* Mean	= Total trips	Campers	* Mean	= Total 1-way miles
AZ	596,587	4.8	2,865,706	596,587	144.7	86,331,670
CO	981,494	6.0	5,874,381	981,494	134.2	131,745,108
NV	243,554	5.0	1,223,290	243,554	136.8	33,321,198
NM	232,276	4.1	960,646	232,276	167.7	38,963,872
UT	412,582	4.4	1,804,076	412,582	157.6	65,043,211
WY	113,828	7.6	860,400	113,828	117.3	13,347,224
Region	2,580,320	5.3	13,588,499	2,580,320	142.9	368,752,283

Table 13c. “Q26: On a typical camping trip along the Colorado River or its tributaries, how many nights do you camp?”

State	Q26: On a typical camping trip, how many nights?		
	Campers	* Mean	= Total nights
AZ	596,587	3.4	2,041,941
CO	970,737	3.6	3,526,780
NV	243,554	3.1	747,801
NM	232,276	3.8	891,177
UT	408,935	3.6	1,481,901
WY	111,841	4.2	473,747
Region	2,563,930	3.6	9,163,348

Snow Sports (Snowboarding, Snowshoeing, Downhill, Telemark, Cross-country, Nordic Skiing)

Table 14a. “Q27: In the past year, did you participate in snow sports such as snowboarding, snowshoeing, or downhill, telemark, cross-country, or nordic skiing along the Colorado River or any of its tributaries?” *Projections to state and region populations.*

State	Q27: Snow sports in 2011?				
	Yes		No		Total
AZ	1.9%	89,641	98.1%	4,673,361	4,763,003
CO	11.4%	433,139	88.6%	3,370,449	3,803,588
NV	4.4%	90,547	95.6%	1,944,996	2,035,543
NM	6.3%	96,873	93.7%	1,443,635	1,540,508
UT	4.2%	80,040	95.8%	1,812,818	1,892,859
WY	10.1%	43,226	89.9%	384,998	428,224
Region	5.8%	833,466	94.2%	13,630,258	14,463,724

Table 14b. “Q28: In the past year, how many DAY TRIPS did you take IN TOTAL for snow sports along the Colorado River or its tributaries?” & “Q29: On your most recent DAY TRIP for snow sports along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?”

State	Q28: How many day trips snow sports?			Q29: 1-way miles traveled most recent day trip for snow sports?		
	SnowSporters	* Mean	= Total trips	SnowSporters	* Mean	= Total 1-way miles
AZ	78,318	4.7	367,999	78,318	92.0	7,206,026
CO	404,693	10.8	4,363,416	404,693	69.8	28,233,127
NV	86,813	5.7	492,373	86,813	77.0	6,687,532
NM	90,454	3.9	354,255	90,454	74.9	6,774,607
UT	76,393	3.4	257,014	76,393	60.9	4,655,834
WY	41,840	10.7	446,516	41,840	57.8	2,418,478
Region	778,511	8.1	6,281,574	778,511	71.9	55,975,605

Table 14c. “Q30: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for snow sports along the Colorado River or its tributaries?” & “Q31: On your most recent OVERNIGHT TRIP for snow sports along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?”

State	Q30: How many overnight trips snow sports?			Q31: 1-way miles traveled most recent overnight trip snow sports?		
	SnowSporters	* Mean	= Total trips	SnowSporters	* Mean	= Total 1-way miles
AZ	45,293	3.5	158,526	45,293	143.0	6,476,917
CO	228,282	3.6	814,406	228,282	120.2	27,433,782
NV	50,747	4.1	207,999	50,747	147.1	7,462,855
NM	53,112	3.6	190,861	53,112	162.5	8,631,504
UT	27,640	1.4	37,812	27,640	180.1	4,978,068
WY	14,278	3.8	54,938	14,278	187.7	2,679,261
Region	419,352	3.5	1,464,541	419,352	137.5	57,662,387

Water Sports (Swimming, Kayaking, Canoeing, Rafting, & Motor-boating)

Table 15a. "Q32: In the past year, did you participate in water sports such as swimming, kayaking, canoeing, rafting, or motor-boating on the Colorado River or any of its tributaries?"
Projections to state and region populations.

State	Q32: Water sports in 2011?				
	Yes		No		Total
AZ	15.7%	750,157	84.3%	4,012,846	4,763,003
CO	14.7%	557,678	85.3%	3,245,910	3,803,588
NV	17.1%	347,251	82.9%	1,688,292	2,035,543
NM	12.3%	190,243	87.7%	1,350,264	1,540,508
UT	17.8%	336,957	82.2%	1,555,902	1,892,859
WY	18.0%	77,140	82.0%	351,084	428,224
Region	15.6%	2,259,426	84.4%	12,204,298	14,463,724

Table 15b. "Q33: In the past year, how many DAY TRIPS did you take IN TOTAL for water sports on the Colorado River or its tributaries?" & "Q34: On your most recent DAY TRIP for water sports on the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q33: How many day trips water sports?			Q34: 1-way miles traveled most recent day trip water sports?		
	WaterSporters	* Mean	= Total trips	WaterSporters	* Mean	= Total 1-way miles
AZ	738,833	6.5	4,766,811	738,833	71.0	52,479,969
CO	529,232	9.2	4,851,534	529,232	72.5	38,360,968
NV	318,654	8.4	2,669,397	318,654	45.6	14,519,974
NM	174,489	5.0	865,485	174,489	86.9	15,166,931
UT	309,988	5.4	1,677,295	309,988	107.9	33,458,953
WY	72,774	12.1	881,031	72,774	46.8	3,402,472
Region	2,143,971	7.3	15,711,552	2,143,971	73.4	157,389,266

Table 15c. "Q35: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for water sports on the Colorado River or its tributaries?" & "Q36: On your most recent OVERNIGHT TRIP for water sports on the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?"

State	Q35: How many overnight trips water sports?			Q36: 1-way miles traveled most recent overnight trip water sports?		
	WaterSporters	* Mean	= Total trips	WaterSporters	* Mean	= Total 1-way miles
AZ	342,053	4.5	1,546,086	342,053	169.8	58,084,979
CO	323,181	5.1	1,650,086	323,181	133.2	43,037,526
NV	167,433	6.4	1,073,669	167,433	112.8	18,893,259
NM	123,136	4.9	608,674	123,136	219.5	27,023,937
UT	273,615	3.8	1,043,402	273,615	201.9	55,244,911
WY	43,019	9.6	411,629	43,019	66.1	2,842,088
Region	1,272,437	5.0	6,333,545	1,272,437	161.2	205,126,700

Picnicking or Relaxing

Table 16a. "Q37: In the past year, did you participate in picnicking or relaxing along the Colorado River or any of its tributaries?" *Projections to state and region populations.*

State	Q37: Picnicking or relaxing in 2011?				Total
	Yes		No		
AZ	24.9%	1,185,151	75.1%	3,577,852	4,763,003
CO	24.6%	935,120	75.4%	2,868,467	3,803,588
NV	20.1%	409,456	79.9%	1,626,087	2,035,543
NM	23.9%	367,633	76.1%	1,172,875	1,540,508
UT	26.1%	494,256	73.9%	1,398,603	1,892,859
WY	29.1%	124,567	70.9%	303,657	428,224
Region	24.3%	3,516,182	75.7%	10,947,541	14,463,724

Table 16b. "Q38: In the past year, how many DAY TRIPS did you take IN TOTAL for picnicking or relaxing along the Colorado River or its tributaries?" & "Q39: On your most recent DAY TRIP for picnicking or relaxing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?" [NOTE: no questions inquired about OVERNIGHT picnicking/relaxing trips].

State	Q38: How many day trips picnic/relax?			Q39: 1-way miles traveled most recent trip picnic/relax?		
	Picnickers	* Mean	= Total trips	Picnickers	* Mean	= Total 1-way miles
AZ	1,129,479	7.7	8,675,829	1,129,479	55.7	62,909,875
CO	874,404	9.4	8,261,903	874,404	63.8	55,765,153
NV	402,243	7.4	2,973,045	402,243	54.9	22,101,381
NM	319,196	7.0	2,241,121	319,196	80.8	25,782,476
UT	462,201	5.8	2,660,262	462,201	82.8	38,290,118
WY	117,221	11.2	1,308,386	117,221	58.5	6,859,117
Region	3,304,745	7.9	26,120,546	3,304,745	64.1	211,708,120

Participation Summary:

The total estimated number of recreational participants and days for each activity and in total are summarized in tables 17a and 17b.

Table 17a: Recreational Participation along the Colorado River and its Tributaries – Human Powered Recreation

	Trail Activities		Bicycling		Camping		Picnicking		Snow Sports		Water Sports	
	%*	Participants	%*	Participants	%*	Participants	%*	Participants	%*	Participants	%*	Participants
Arizona	19.0%	903,726	4.1%	193,673	12.7%	604,844	24.9%	1,185,151	1.9%	89,641	15.7%	750,157
Colorado	27.4%	1,040,776	11.4%	431,943	26.0%	990,338	24.6%	935,120	11.4%	433,139	14.7%	557,678
Nevada	17.0%	345,303	4.7%	94,791	12.0%	243,554	20.1%	409,456	4.4%	90,547	17.1%	347,251
New Mexico	20.3%	312,206	5.6%	86,951	15.3%	235,193	23.9%	367,633	6.3%	96,873	12.3%	190,243
Utah	22.8%	432,353	4.2%	78,601	21.8%	412,582	26.1%	494,256	4.2%	80,040	17.8%	336,957
Wyoming	22.0%	94,398	5.8%	24,789	26.9%	115,214	29.1%	124,567	10.1%	43,226	18.0%	77,140
TOTAL	21.6%	3,128,762	6.3%	910,749	18.0%	2,601,724	24.3%	3,516,182	5.8%	833,466	15.6%	2,259,426

% refers to percent of the statewide adult population that participates in the activity.

Table 17b: Recreational Participation along the Colorado River and its Tributaries - Fish & Wildlife-Related Recreation

	Hunting		Fishing		Wildlife Watching	
	%*	Participants	%*	Participants	%*	Participants
Arizona	2.6%	121,489	10.3%	492,323	19.4%	923,538
Colorado	6.2%	234,736	24.5%	932,252	18.9%	720,224
Nevada	1.1%	22,405	11.5%	234,393	14.8%	301,259
New Mexico	3.6%	55,442	17.9%	276,037	18.2%	280,111
Utah	4.1%	77,833	16.0%	301,926	20.5%	387,247
Wyoming	15.8%	67,788	31.5%	134,851	26.8%	114,655
TOTAL	4.0%	579,692	16.4%	2,371,781	18.9%	2,727,034

* refers to percent of the statewide adult population that participates in the activity.

Table 18: Participation Per Recreational Activity Across the Six State Study Region

	% of Population	Number of Participants
Trail activities	21.6%	3,128,762
Bicycling	6.3%	910,749
Camping	18.0%	2,601,724
Picnicking	24.3%	3,516,182
Snow sports	5.8%	833,466
Water sports	15.6%	2,259,426
Wildlife-related		
Hunting	4.0%	579,692
Fishing	16.4%	2,371,781
Wildlife Watching	18.9%	2,727,034

What If The River Was Not Available?

As a final question, respondents were asked the extent to which their outdoor recreational activity would be affected if the Colorado River and its tributaries were not available (Table 19). The plurality of respondents in all states and the region answered that their outdoor activity would be affected a “great amount,” and majorities or near-majorities said their outdoor recreation would be affected at least a “moderate amount.” Across the region, 57.3% of residents reporting their participation would be affected by a “great amount” or by a “moderate amount.”

Table 18. Q41: “If ALL of the Colorado River and any of its tributaries were not available for [dynamic insertion of the outdoor activity referenced in Q40], by how much would your total [activity] decrease? By...”.

State	Q41: If CO River & tribs unavailable, affect on your recreation?				
	Great amount	Moderate amount	Small amount	Not at all	Total
AZ	38.5%	16.9%	26.9%	17.7%	1,670,395
CO	39.0%	21.0%	26.1%	13.9%	1,719,407
NV	37.3%	17.9%	31.9%	12.9%	614,486
NM	32.8%	20.7%	22.1%	24.4%	546,211
UT	34.5%	26.7%	22.8%	16.0%	743,013
WY	33.7%	20.0%	23.7%	22.7%	200,300
Region	37.2%	20.1%	26.1%	16.6%	5,493,811

Expenditure and Economic Contributions

The expenditures and economic contributions associated with recreation along the Colorado River and its Tributaries are presented in the tables below. Results per states, for all types of tracked activities are presented in Table 19. Table 20 presents the results for the Colorado River as a whole, across the six states examined.

Table 19: Expenditures and Impacts Generated from River-Related Recreation, Per State

	Direct Spending	Total Output	Labor Income	Jobs	Federal Taxes	State & Local Taxes
Arizona	\$ 3,794,644,820	\$ 5,962,031,159	\$ 2,456,958,038	53,508	\$ 381,113,296	\$ 382,744,114
Colorado	\$ 6,364,292,781	\$ 9,577,271,371	\$ 4,046,382,438	79,585	\$ 612,828,329	\$ 575,543,539
Nevada	\$ 1,996,169,031	\$ 2,888,735,494	\$ 1,178,298,209	25,329	\$ 178,425,991	\$ 180,187,640
New Mexico	\$ 1,206,132,350	\$ 1,684,428,434	\$ 666,992,155	17,129	\$ 87,937,518	\$ 103,221,063
Utah	\$ 2,089,492,177	\$ 3,351,775,769	\$ 1,347,511,505	34,100	\$ 216,737,169	\$ 211,748,071
Wyoming	\$ 1,587,748,500	\$ 2,208,194,838	\$ 741,102,520	24,681	\$ 147,681,740	\$ 155,051,134
TOTAL	\$ 17,038,479,658	\$ 25,672,437,064	\$ 10,437,244,865	234,333	\$ 1,624,724,043	\$ 1,608,495,561

Table 20: Expenditures and Impacts Generated from River-Related Recreation, By Type of Activity for the Colorado River across All Six States Examined

	Direct Spending	Total Output	Income	Employment
Trail activities	\$ 2,229,564,981	\$ 3,230,644,983	\$ 1,455,752,258	28,655
Bicycling	\$ 555,260,904	\$ 801,260,188	\$ 361,687,047	7,021
Camping	\$ 4,578,029,814	\$ 6,666,279,209	\$ 3,004,538,050	58,875
Picnicking	\$ 750,447,842	\$ 1,106,564,506	\$ 499,642,997	9,576
Snow sports	\$ 1,721,212,572	\$ 2,485,034,153	\$ 1,120,522,255	21,639
Water sports	\$ 1,700,196,188	\$ 2,489,480,202	\$ 1,124,069,015	21,685
Wildlife-related				
Hunting	\$ 532,404,576	\$ 891,877,474	\$ 280,300,313	8,757
Fishing	\$ 1,420,217,775	\$ 1,905,006,335	\$ 408,754,689	13,207
Wildlife Watching	\$ 3,551,145,007	\$ 6,096,290,014	\$ 2,181,978,241	64,918
TOTAL	\$17,038,479,658	\$ 25,672,437,064	\$ 10,437,244,865	234,333

The following tables present greater detail by type of economic impact. “Direct” impacts refer to the level of returns created by the initial expenditures made by recreationists. These would include jobs at the retailers, fuel stations, hotels, etc. patronized by recreationists. The “multiplier effect” refers to the additional rounds of impacts that are created when the retailers and other businesses who first receive recreationists’ dollars then spend and respense these dollars as they move through the region under study.

Table 21: Total Economic Activity Supported by Recreation along the Colorado River and Its Tributaries

	Direct Spending	Multiplier Effect	Total Output
Trail activities	\$ 2,229,564,981	\$ 1,001,080,002	\$ 3,230,644,983
Bicycling	\$ 555,260,904	\$ 245,999,284	\$ 801,260,188
Camping	\$ 4,578,029,814	\$ 2,088,249,395	\$ 6,666,279,209
Picnicking	\$ 750,447,842	\$ 356,116,664	\$ 1,106,564,506
Snow sports	\$ 1,721,212,572	\$ 763,821,581	\$ 2,485,034,153
Water sports	\$ 1,700,196,188	\$ 789,284,014	\$ 2,489,480,202
Wildlife-related			
Hunting	\$ 532,404,576	\$ 359,472,898	\$ 891,877,474
Fishing	\$ 1,420,217,775	\$ 484,788,561	\$ 1,905,006,335
Wildlife Watching	\$ 3,551,145,007	\$ 2,545,145,007	\$ 6,096,290,014
TOTAL	\$ 17,038,479,658	\$ 8,633,957,406	\$ 25,672,437,064

Table 22: Total Employment Supported by Recreation along the Colorado River and Its Tributaries

	Direct Spending	Multiplier Effect	Total Contribution
Trail activities	21,011	7,644	28,655
Bicycling	5,213	1,808	7,021
Camping	43,083	15,792	58,875
Picnicking	6,871	2,705	9,576
Snow sports	16,060	5,578	21,639
Water sports	15,651	6,034	21,685
<u>Wildlife-related</u>			
Hunting			8,757
Fishing			13,207
Wildlife Watching			64,918
TOTAL			234,333

Table 23: Total Income (Salaries and Wages) Supported by Recreation along the Colorado River and Its Tributaries

	Direct Spending	Multiplier Effect	Total Contribution
Trail activities	\$ 850,622,756	\$ 605,129,502	\$ 1,455,752,258
Bicycling	\$ 212,385,229	\$ 149,301,818	\$ 361,687,047
Camping	\$ 1,745,259,659	\$ 1,259,278,391	\$ 3,004,538,050
Picnicking	\$ 284,662,275	\$ 214,980,722	\$ 499,642,997
Snow sports	\$ 656,838,622	\$ 463,683,632	\$ 1,120,522,255
Water sports	\$ 647,131,652	\$ 476,937,362	\$ 1,124,069,015
<u>Wildlife-related</u>			
Hunting			\$ 280,300,313
Fishing			\$ 408,754,689
Wildlife Watching			\$ 2,181,978,241
TOTAL			10,437,244,865

Table 24: Total Economic Activity and Jobs Supported by Recreation along the Colorado River and Its Tributaries, by State:

Total Retail Sales Per Activity, by State:

Arizona		
	Economic Activity	Jobs
Trail Activities	\$ 821,177,399	7,122
Bicycling	\$ 82,808,874	740
Camping	\$ 1,479,790,228	12,752
Picnicking	\$ 382,106,322	3,230
Snow Sports	\$ 205,871,976	1,784
Water Sports	\$ 747,736,750	6,362
Hunting	\$ 328,087,059	2,597
Fishing	\$ 128,224,994	1,128
Wildlife Viewing	\$ 1,786,227,556	17,793
	\$ 5,962,031,159	53,508

Colorado		
	Economic Activity	Jobs
Trail Activities	\$ 1,145,487,372	9,613
Bicycling	\$ 494,885,500	4,152
Camping	\$ 2,874,441,938	24,024
Picnicking	\$ 353,179,799	2,913
Snow Sports	\$ 1,604,360,753	13,399
Water Sports	\$ 739,195,347	6,122
Hunting	\$ 92,128,883	940
Fishing	\$ 835,863,840	5,062
Wildlife Viewing	\$ 1,437,727,940	13,360
	\$ 9,577,271,371	79,585

New Mexico		
	Economic Activity	Jobs
Trail Activities	\$ 319,883,331	3,239
Bicycling	\$ 90,299,483	915
Camping	\$ 450,770,124	4,573
Picnicking	\$ 87,897,710	867
Snow Sports	\$ 198,369,985	2,020
Water Sports	\$ 156,139,861	1,554
Hunting	\$ 122,798,302	1,325
Fishing	\$ 138,975,440	1,159
Wildlife Viewing	\$ 119,294,197	1,477
	\$ 1,684,428,434	17,129

Nevada		
	Economic Activity	Jobs
Trail Activities	\$ 440,115,905	3,703
Bicycling	\$ 83,987,902	715
Camping	\$ 574,767,932	4,846
Picnicking	\$ 119,865,927	985
Snow Sports	\$ 241,046,260	2,036
Water Sports	\$ 402,421,337	3,331
Hunting	\$ 35,497,011	273
Fishing	\$ 220,557,432	1,206
Wildlife Viewing	\$ 770,475,786	8,236
	\$ 2,888,735,494	25,329

Utah		
	Economic Activity	Jobs
Trail Activities	\$ 385,814,115	3,732
Bicycling	\$ 37,657,523	373
Camping	\$ 942,972,932	9,073
Picnicking	\$ 117,131,537	1,104
Snow Sports	\$ 111,232,881	1,091
Water Sports	\$ 323,050,084	3,066
Hunting	\$ 191,306,679	2,192
Fishing	\$ 170,351,547	1,401
Wildlife Viewing	\$ 1,072,258,469	12,068
	\$ 3,351,775,769	34,100

Wyoming		
	Economic Activity	Jobs
Trail Activities	\$ 118,166,861	1,245
Bicycling	\$ 11,620,905	128
Camping	\$ 343,536,053	3,607
Picnicking	\$ 46,383,210	477
Snow Sports	\$ 124,152,297	1,310
Water Sports	\$ 120,936,823	1,250
Hunting	\$ 122,059,541	1,431
Fishing	\$ 411,033,082	3,251
Wildlife Viewing	\$ 910,306,066	11,983
	\$ 2,208,194,838	24,681

Putting the Results into Perspective

The numbers presented in this report are large. To better understand the magnitude of the results, a series of statements are provided below that compare the results to numbers and issues typically better understood by most individuals. The topics were suggested by Protect The Flows as they either are universal in nature or relate to issues frequently associated with water management.

Fortune 500:

- The total retail sales from recreation associated with the Colorado River and its tributaries would rank #155 on the Fortune 500.
- If recreation associated with the Colorado River and its tributaries was a company, the jobs it supports would make it the 19th largest employer on the Fortune 500.

Agriculture:

- Retail sales in Arizona on recreation activity associated with the Colorado River is 15% greater than the value of the state's annual agricultural production.
- Retail sales in Colorado on recreation activity associated with the Colorado River is greater than the value of the state's annual agricultural production.
- Retail sales in Nevada on recreation activity associated with the Colorado River is two and a half times greater than the value of the state's annual agricultural production.
- Retail sales in New Mexico on recreation activity associated with the Colorado River is equivalent to 55% of the value of the state's annual agricultural production.
- Retail sales in Utah on recreation activity associated with the Colorado River is 45% greater than the value of the state's annual agricultural production.
- Retail sales in Wyoming on recreation activity associated with the Colorado River is one-third greater than the value of the state's annual agricultural production.

Participation Compared to City and State Population:

- One out of three adults in the six states examined (AZ, CO, NV, NM, UT & WY) use the Colorado River or its tributaries for recreational enjoyment.
- In Arizona, 36% of all adults use the Colorado River or its tributaries for recreation.
- In Colorado, 45% of all adults use the Colorado River or its tributaries for recreation.
- In Nevada, 31% of all adults use the Colorado River or its tributaries for recreation.
- In New Mexico, 36% of all adults use the Colorado River or its tributaries for recreation.
- In Utah, 40% of all adults use the Colorado River or its tributaries for recreation.
- In WY, 48% of all adults use the Colorado River or its tributaries for recreation.

- The number of people (18+ years old) who use the Colorado River for recreation is greater than the total population of Colorado (5.6 million users compared to 5.0 million state residents.)
- The number of people (18+ years old) who use the Colorado River or its tributaries for recreation is greater than the combined populations of Utah and Nevada (5.6 million users compared to 5.5 million combined state residents.)
- The number of people (18+ years old) who use the Colorado River and its tributaries for hiking, jogging and other trail activities are greater than the population of Nevada, New Mexico, Utah or Wyoming.
- The number of people (18+ years old) who use the Colorado River and its tributaries for fishing, hunting or wildlife viewing are greater than the populations of Nevada, New Mexico, Utah or Wyoming.
- The number of people (18+ years old) who use the Colorado River and its tributaries for recreation is...
... 34% greater than the population of the Phoenix metropolitan area.

- ... 2.2 times greater than the population of the Denver metropolitan area.
- ... 2.9 times greater than the population of the Las Vegas metropolitan area.
- ... 6.3 times greater than the population of the Albuquerque metropolitan area.
- ... 5.0 times greater than the population of the Salt Lake City metropolitan area.
- ... 10 times greater than the population of Wyoming.

Employment:

- The number of people (18+ years old) employed as a result of recreation associated with the Colorado River and its tributaries equals ...
 - ... 2.2% of Arizona's total employed workforce.
 - ... 3.5% of Colorado's total employed workforce.
 - ... 2.3% of Nevada total employed workforce.
 - ... 2.1% of New Mexico's total employed workforce.
 - ... 2.8% of Utah's total employed workforce.
 - ... 8.7% of Wyoming's total employed workforce.
- If people stopped using the Colorado River and its tributaries for recreation, and did not spend their dollars elsewhere, the unemployment rates in each state would increase by approximately:
 - ... 2.2% in Arizona.
 - ... 3.5% in Colorado.
 - ... 2.3% in Nevada.
 - ... 2.1% in New Mexico.
 - ... 2.8% in Utah.
 - ... 8.7% in Wyoming.

Education:

- The state and federal tax revenues generated in Arizona by recreation associated with the Colorado River and its tributaries would pay the salaries for 13,800 teachers.
- The state and federal tax revenues generated in Colorado by recreation associated with the Colorado River and its tributaries would pay the salaries for 21,470 teachers.
- The state and federal tax revenues generated in Nevada by recreation associated with the Colorado River and its tributaries would pay the salaries for 6,479 teachers.
- The state and federal tax revenues generated in New Mexico by recreation associated with the Colorado River and its tributaries would pay the salaries for 3,454 teachers.
- The state and federal tax revenues generated in Utah by recreation associated with the Colorado River and its tributaries would pay the salaries for 7,741 teachers.
- The state and federal tax revenues generated in Wyoming by recreation associated with the Colorado River and its tributaries would pay the salaries for 5,469 teachers.

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Appendix A: Survey

Colorado River & Tributaries Outdoor Recreational Use Across 6 States

ITEMS (Draft) for a Phone Survey: Version 1-18-2012

Southwick & Associates/DJ Case & Associates

Sample is 1,050 adult (18 and older) residents (English-speaking), 175 each in Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming (A "did not participate" (Q3) does not count against total sample)
15-minute interview per respondent; Access by Random Digit Dial (RDD)

SELECTION SEQUENCE (proposed): Hello, my name is _____, and I'm calling as part of a survey on recreational use of the Colorado River and its tributaries. We're not selling anything or requesting donations.

I need to speak with the adult living in your household 18 or older who had the most recent birthday and is currently at home. Are you that person?

[REINTRODUCE AS NECESSARY, READING INITIAL GREETING TO SPEAK TO NEEDED RESPONDENT]

VOICE MESSAGE: Hello, my name is _____, and I'm calling as part of a survey on recreational use of the Colorado River and its tributaries. We are not selling anything or requesting donations. I will try to call you again in the near future.

This study is funded by Protect the Flows Project, a group of businesses in communities along the Colorado River from Wyoming to Arizona.

Your answers will remain anonymous. As thanks for helping, you and other respondents will be entered into a drawing for 1 of 5 \$100 gift certificates to the retailer of your choice.

- Q1 Can we have about 10 minutes of your time to answer our questions?
- Yes
- No
- Call back later

Progress

Save

Next

Q2

[Interviewer record gender of respondent

- Male
- Female

(a) Document first name of respondent in event s/he is winner of certificate. FIRST NAME: _____

(b) DYNAMIC TEXT: Document phone number of respondent in the event s/he is winner of a certificate: _____

Also, based on telephone exchange, a STATE dynamic text variable [STATE DT] and TRIBUTARY dynamic text variable [TRIB DT] will feed into subsequent questions. _____

STATE DT = Arizona, Colorado, New Mexico, Nevada, Utah, Wyoming **TRIB DT =**
Arizona "...the Colorado River, Little Colorado, Bill Williams, Gila [He'-la], Salt, Verde, Santa Cruz, and San Pedro, plus any of the creeks and other tributaries that flow into these rivers."
Colorado "...the Colorado River and any of its tributaries such as the Green, Little Snake, Blue, Gunnison, Uncompahgre ["Un-com-pa'-gray"], Yampa, White, Dolores, San Miguel [Mi-gel' (hard "g")], and San Juan [Wan as in "wand"], plus any of the creeks and other tributaries that flow into these rivers."

New Mexico "...the San Juan [Wan as in "wand"], Gila, [He'-la] Animas, and San Francisco Rivers and any of their tributaries."

Nevada "...the Colorado River and any of its tributaries such as the Virgin, White, Meadow Valley Wash, and Muddy River."

Utah "...the Colorado River and any of its tributaries such as the Green, Uinta [Oo-in'-te], White, Willow creek, Lake Fork, Price, San Rafael, Fremont, Escalante, Duchesne [Doo-schen'], San Juan (Wan as in "wand"), Virgin, Muddy Creek, and Dirty Devil Rivers."

Wyoming "...all Wyoming lakes, reservoirs, creeks, streams, and rivers that ultimately flow into the Green River, including the Green River; this includes all water bodies within the Central Western and Southwestern Wind River Range and the Central Eastern and Southeastern Wyoming Range."

Progress

- Q3** We're interested in your participation in outdoor recreational activities such as canoeing, kayaking, rafting, fishing, hunting, swimming, hiking, running, bicycling, wildlife-viewing, bird-watching, camping, picnicking, and snow sports. Over the past year from January 1, 2011 to December 31, 2011, did you participate in any such outdoor recreational activities on or along the Colorado River and tributaries in [STATE DT]? As a help in remembering, the Colorado River & its tributaries in [STATE DT] include [TRIB DT]
- Yes
- No [End Survey with Closer at end]
- Not Sure [TO Q3a ONLY for every 10th respondent answering "not sure"]

INTERVIEWER: Please, if at this point--or any point in the interview, though likely the respondent will ask here--the respondent asks a questions such as:
"What do you mean by 'on or along the Colorado River'?",
 your answer is...

"Anyplace where the Colorado River and its tributaries were in view or close at some point during your recreational activity."

Offer this answer only for clarification if the respondents asks the question (such as), "What do you mean by 'on or along the Colorado River'?"

Q3a At which rivers or creeks in [STATE DT] did you recreate? (fill-in, THEN END SURVEY with Closer at end) _____

Progress

For each of the following possible outdoor activities in which you participated on the Colorado River or its tributaries in [STATE DT], please remember the time period is the past year from January 1 through Decembere 31 of 2011.

- Q4** In 2011, did you go fishing on or along the Colorado River or any of its tributaries? Yes [GO TO Q5] No [GO TO Q7]

Q5 How many DAYS did you spend fishing on or along the Colorado River or its tributaries? _____

Q6 On your most recent fishing trip on or along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Progress

Q7 In 2011, did you go hunting along the Colorado River or any of its tributaries? Yes [GO TO Q8] No [GO TO Q10]

Q8 How many **DAYS** did you spend hunting along the Colorado River or its tributaries? _____

Q9 *On your most recent hunting trip along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?* _____

Progress

Q10 In 2011, did you go wildlife-viewing or bird-watching along the Colorado River or any of its tributaries? Yes [GO TO Q11] No [GO TO Q13]

Q11 How many **DAYS** did you spend wildlife-viewing or bird-watching along the Colorado River or its tributaries? _____

Q12 *On your most recent wildlife-viewing or bird-watching trip along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?* _____

Progress

Q13 In the past year, did you participate in jogging, running, day-hiking, backpacking, or climbing ice or rock along the Colorado River or any of its tributaries? Yes [GO TO Q14] No [GO TO Q18]

Q14 In the past year, how many DAY TRIPS did you take IN TOTAL for running, hiking, or climbing along the Colorado River or its tributaries? [If "none" or "0" GO TO Q16] _____

Q15 On your most recent DAY TRIP for running, hiking, or climbing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Q16 In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for running, hiking, or climbing along the Colorado River or its tributaries? [If "none" or "0" GO TO Q18] _____

Q17 On your most recent OVERNIGHT TRIP for running, hiking, or climbing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Progress

Q18 In the past year, did you participate in bicycling on a paved road or off-road along the Colorado River or any of its tributaries? Yes [GO TO Q19] No [GO TO Q23]

Q19 In the past year, how many **DAY TRIPS** did you take **IN TOTAL** for bicycling along the Colorado River or its tributaries? [If "none" or "0" GO TO Q21] _____

Q20 On your *most recent DAY TRIP* for bicycling along the Colorado River or its tributaries, how many miles did you travel **ONE-WAY** to reach your destination? _____

Q21 In the past year, how many **OVERNIGHT TRIPS** did you take **IN TOTAL** for bicycling along the Colorado River or its tributaries? [If "none" or "0" GO TO Q23] _____

Q22 On your *most recent OVERNIGHT TRIP* for bicycling along the Colorado River or its tributaries, how many miles did you travel **ONE-WAY** to reach your destination? _____

Progress

Q23 In the past year, did you participate in camping in an RV, at a campsite, in a tent, or at a rustic lodge along the Colorado River or any of its tributaries? **Yes [GO TO Q24]**
 No [GO TO Q27]

Q24 In the past year, how many OVERNIGHT TRIPS did you take **IN TOTAL** for camping along the Colorado River or tributaries? _____

Q25 On your most recent OVERNIGHT TRIP for camping along the Colorado River or tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Q26 On a typical camping trip along the Colorado River or its tributaries, how many nights do you camp? _____

Progress

Q27 In the past year, did you participate in snow sports such as snowboarding, snowshoeing, or downhill, telemark, cross-country, or nordic skiing along the Colorado River or any of its tributaries? **Yes [GO TO Q28]**
 No [GO TO Q32]

Q28 In the past year, how many DAY TRIPS did you take IN TOTAL for snow sports along the Colorado River or its tributaries? [If "none" or "0" GO TO Q30] _____

Q29 On your most recent DAY TRIP for snow sports along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Q30 In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for snow sports along the Colorado River or its tributaries? [If "none" or "0" GO TO Q32] _____

Q31 On your most recent OVERNIGHT TRIP for snow sports along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Progress

Q32 In the past year, did you participate in water sports such as swimming, kayaking, canoeing, rafting, motor-boating on the Colorado River or any of its tributaries? Yes [GO TO Q33] No [GO TO Q37]

Q33 In the past year, how many DAY TRIPS did you take IN TOTAL for water sports on the Colorado River or its tributaries? [If "none" or "0" GO TO Q35] _____

Q34 On your most recent DAY TRIP for water sports on the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Q35 In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for water sports on the Colorado River or its tributaries? [If "none" or "0" GO TO Q37] _____

Q36 On your most recent OVERNIGHT TRIP for water sports on the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

Progress

- Q37** In the past year, did you participate in picnicking or relaxing along the Colorado River or any of its tributaries? Yes [GO TO Q38] No [GO TO Q40]

Q38 In the past year, how many **DAY TRIPS** did you take **IN TOTAL** for picnicking or relaxing along the Colorado River or its tributaries? [If "none" or "0" GO TO Q??] _____

Q39 On your *most recent* **DAY TRIP** for picnicking or relaxing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination? _____

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Q40 In all of 2011, how many days did you participate in [Dynamic-Text Insert of one of the following "yes" activities selected at random: "fishing"; "hunting"; wildlife viewing"; "running, hiking, and climbing"; "bicycling"; "camping"; "snow sports"; "water sports"; "picnicking or relaxing"] anywhere in [DTSTATE] _____

Q41 If ALL of the Colorado River and any of its tributaries were not available for [Dynamic-Text Insert of Q40 "yes" activity], by how much would your total [DTactivity] decrease? By...[Read]

INTERVIEWER: If respondent expresses concern such as, "What do you mean, 'shutting down the Colorado River'?" explain that this question is simply intended to help us measure the importance of the Colorado River to recreation.

- A great amount
- A moderate amount
- A small amount
- Not at all

Progress 

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- Q42** With which race or ethnic group do you most closely identify yourself? [READ LIST– Respondent will likely interrupt with answer after first 3 categories]
- Black or African American*
 - White*
 - Hispanic or Latino*
 - Asian or Pacific Islander*
 - Native American*
 - Native Hawaiian or Pacific Islander*
 - Other*
 - Refused [DO NOT READ]*

Progress 

- Q43** May I ask your age? [CATEGORIZE RESPONSE]
- 18 to 24*
 - 25 to 34*
 - 35 to 44*
 - 45 to 54*
 - 55 to 64*
 - 65 or older*
 - Refused [DO NOT READ]*

- Q44** What is the 5-digit zipcode of your residence?

Progress 

- Q45** Which of the following income categories best describes your total 2011 household income?
- Less than \$25,000*
 - \$25,000 to \$49,999*
 - \$50,000 to \$74,999*
 - \$75,000 to \$99,999*
 - \$100,000 or more*
 - Refused [DO NOT READ]*

Progress 

[CLOSER] That's all my questions. You'll be entered into the prize drawing. Thank you very much.

Progress 

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Submit

Appendix B: Extreme Values Withheld From Analysis

As explained in the narrative, applying expansion weights to data introduces potential to project wildly inflated estimates on the basis of “rare events.” To illustrate, consider the effect that *one* Arizona male who indicates he “jogs, runs, day-hikes, backpacks, or climbs ice or rock” *365 days a year*. In this study, that one Arizona male represents 11,323 Arizona males (by statistical weight) who participate in “jogging, running...etc.”; but the 365 days a year expands to *a total of 4,132,895 days* of “jogging, running...” (11,323*365), based on data reported by one individual. Possible? Certainly. But every study requires decisions about the plausibility of answers given by respondents, as well as the overall effect of such extreme values on projections.

Experience shows that most survey participants provide answers to the best of their recollection, and cooperate to the extent they’re willing to concentrate on the question, realistically recall the information requested, and provide an accurate answer—but all this in the context of being asked to participate in the survey on (usually) the spur-of-the-moment and in the midst of all that’s going on in their lives and around them at that very minute. Examination of data sometimes suggests that survey participants may have “grabbed” at answers in order to accelerate the interview process (in some cases, large round numbers, while not reflecting on the plausibility of these numbers), or guessed at answers—something that undoubtedly occurs to some extent—or rarely, provided “silly” answers—but all with the potential to introduce gross inflation to subsequent participation estimates.

That said, some “extreme” answers are credible. In the narrative, the illustration was cited of 15 individuals who answered that they participated in wildlife-viewing or bird-watching along the Colorado River or tributaries *365 days a year*. And for *residents* along the Colorado River or tributaries, these “high-side” estimates of daily participation amounting to hundreds of days across the year are entirely plausible.

Ultimately, decisions must be made about the validity of these “high-side” responses and their effects on participation projections. In this study, corroborative support for participation estimates was sought in the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, as well as a 2010 Southwick project that estimated outdoor recreation participation and expenditures in the Census Bureau’s Mountain Division. When possible, participation estimates from this 2011 investigation were compared to these two datasets to help ground-truth the estimates.

In the process, “extreme values” (or certainly potentially inflated individual answers) for selected variables were identified and a consistent process implemented to adjust these extreme values. Specifically, questionable values were replaced with the arithmetic mean for the variable—the arithmetic mean calculated in the absence of the potentially inflated values. These data adjustments were kept to an absolute minimum; but consistent adjustment of these potentially inflated responses seemed far more prudent than to ignore and include them. These questionable values are now reported for each variable affected, as well as the mean values substituted for them.

Q5: How many DAYS did you spend fishing on or along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
365	1	9
200	2	9
150	1	9
113	1	9
105	1	9
100	1	9

Q6: On your most recent fishing trip on or along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	4	95
900	1	95
800	1	95
740	1	95

Q8: How many DAYS did you spend hunting along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
200	1	11
180	1	11

Q9: On your most recent hunting trip along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	1	94

Q11: How many DAYS did you spend wildlife-viewing or bird-watching along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
365	15	14
360	1	14
340	1	14
300	9	14

Q12: On your most recent wildlife-viewing or bird-watching trip along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	4	97
900	1	97
800	1	97

Q14: In the past year, how many DAY TRIPS did you take IN TOTAL for running, hiking, or climbing along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
365	4	12
340	1	12
300	1	12

Q15: On your most recent DAY TRIP for running, hiking, or climbing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	1	82
800	1	82

Q16: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for running, hiking, or climbing along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
365	1	3

Q17: On your most recent OVERNIGHT TRIP for running, hiking, or climbing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	2	132
900	1	132

Q19: In the past year, how many DAY TRIPS did you take IN TOTAL for bicycling along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
365	2	13
300	1	13

Q24: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for camping along the Colorado River or tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
200	1	5

Q25: On your most recent OVERNIGHT TRIP for camping along the Colorado River or tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	5	142
900	1	142

Q26: On a typical camping trip along the Colorado River or its tributaries, how many nights do you camp?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
90	1	4
60	1	4
40	1	4

Q29: On your most recent DAY TRIP for snow sports along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	1	132
820	1	132
500	2	132
400	1	132
300	4	132
276	1	132

Q30: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for snow sports along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
55	1	4
50	1	4
40	1	4

Q31: On your most recent OVERNIGHT TRIP for snow sports along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	1	122
820	1	122

Q33: In the past year, how many DAY TRIPS did you take IN TOTAL for water sports on the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
200	3	8
182	1	8
120	1	8

Q34: On your most recent DAY TRIP for water sports on the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	2	69
740	1	69
650	1	69
600	1	69
525	1	69
500	3	69
450	1	69
400	7	69
350	3	69
300	19	69

Q35: In the past year, how many OVERNIGHT TRIPS did you take IN TOTAL for water sports on the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
200	2	6
120	1	6
85	1	6
80	1	6

Q36: On your most recent OVERNIGHT TRIP for water sports on the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	2	156
800	1	156

Q38: In the past year, how many DAY TRIPS did you take IN TOTAL for picnicking or relaxing along the Colorado River or its tributaries?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
365	3	8
300	1	8
200	2	8

Q39: On your most recent DAY TRIP for picnicking or relaxing along the Colorado River or its tributaries, how many miles did you travel ONE-WAY to reach your destination?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
999 (999 or more miles)	5	65
740	1	65
650	1	65
600	2	65
500	8	65
400	8	65
350	5	65
300	36	65

Q40: In all of 2011, how many days did you spend [dynamic insertion of activity FISHING] anywhere in [dynamic insertion of state]?

<u>Questionable Value</u>	<u>Number Responding</u>	<u>Mean Substituted</u>
302	1	15
230	1	15
207	1	15
182	1	15
140	1	15
100	2	15