
**California Outdoor Recreation
Economic Study: Statewide
Contributions and Benefits**



California Outdoor Recreation Economic Study: Statewide Contributions and Benefits

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SECTION ES.

Executive Summary

The purposes of this study was to quantify the **contribution** to the California economy from expenditures on outdoor recreation and the **economic benefits** that California residents obtain from participating in outdoor recreation. The estimated economic contribution and economic benefits were also examined for different regions of the state and for different types of parks and facilities (e.g., federally-managed lands and parks; the State Park System (SPS); regional, county and local parks; and several specific activities that occur both within and outside of defined parks).

This study focuses on outdoor recreation on public lands and in common spaces. As such, we have defined outdoor recreation to encompass the wide array of participatory recreation activities that people enjoy at places such as local and regional parks, the SPS, National Park Service (NPS) facilities and other federally-managed lands including U.S. Forest Service (USFS) lands, Bureau of Land Management (BLM) lands, and others. This definition also encompasses recreation at local and regional parks. Our definition – and this analysis – generally excludes outdoor recreation at private facilities, such as golf at resorts and country clubs and equestrian activities and horse maintenance at private stables.

California's diverse landscape offers a wide range of recreation opportunities. In addition to statewide results, the study team evaluated economic contributions and benefits from outdoor recreation for seven regions within the state. Figure ES-1 illustrates the seven regions.

Figure ES-1. California Regions



Statewide Outdoor Recreation Participation

Based on data from the Survey of Public Opinions and Attitudes on Outdoor Recreation in California (SPOA), the study team estimated that the average adult Californian participates in some type of outdoor activity during **at least** 96 days per year. Based on California’s population of about 27.4 million adults in 2008, we estimate a total of approximately 2.6 billion days of outdoor recreation by adults during that year. Assuming children participate in outdoor recreation with the same frequency as adults¹, there were an estimated 3.5 billion days of outdoor recreation participation by California residents in 2008.

The SPOA analysis indicates that almost 44 percent of Californians’ recreation days (1.5 billion recreation days in total) took place outside of parks – primarily including activities like walking for fitness and pleasure, jogging or running, bicycling on paved surfaces and similar types of activities. An estimated 27 percent of outdoor recreation participation (almost 1 billion total recreation days) took place in local parks. The remaining 29 percent of recreation participation was divided between regional, state and national parks and facilities; natural and undeveloped areas; and historic and cultural buildings and sites. Figure ES-2 summarizes annual outdoor recreation participation per resident and the total number of annual days that Californians participate in outdoor recreation in various types of settings.

¹ As discussed in greater detail in Section 1 of this report, available data are not sufficient to reliably estimate differences in outdoor recreation participation by age for different types of outdoor recreation facilities (e.g. federally-managed facilities, the SPS, regional and local parks).

Figure ES-2.
Estimated Average Annual Outdoor Recreation Participation for Californian Residents

Type of Location	Adult Average Days per Year	Statewide Annual Participation Days	
		Adults Only (Millions)	Including Children (Millions)
Not in a park*	42 **	1,151	1,544
Local park	26	712	956
Regional, state or national park	13	356	478
Historical or cultural building or area	5	137	184
Natural and undeveloped areas	10	274	368
Total	96 **	2,630	3,529

Notes: *These are primarily activities conducted near home such as walking for fitness and pleasure, bicycling on paved surfaces, swimming in home pools, jogging/running and similar activities.

**Minimum estimate described in greater detail in Section 1, actual totals may be larger.

Source: BBC Research & Consulting, 2010 based on analysis of data from SPOA mail-back survey questions 2 and 4 and California demographics from the 2008 American Community Survey 1-year estimates.

At a more detailed level, visitation data from federal agencies indicate that federally-managed lands in California (NPS facilities, USFS lands, BLM lands, National Wildlife Refuges (NWR) and Army Corps of Engineers (Corps) facilities) average approximately 90 million visitor days per year. The SPS averages approximately 78 million visitor days per year.

Three major outdoor recreation activities that occur either outside of the SPS and federally-managed lands, or are only partly captured by the analysis of activities in those settings, include hunting and fishing, boating and golf on publicly-owned courses. Excluding activities occurring on state and federally-managed recreation areas, the study team estimated there were an average of 11.5 million activity days of hunting and fishing; 69 million activity days of boating and 8.3 million activity days of golf on public courses each year throughout California.

Recreation participation at regional and local parks is the most difficult to quantify given the lack of access control and visitation counts for these types of facilities. Combining the data summarized in Figure ES-1 with the visitation counts at federally-managed lands and the SPS, the study team developed an estimate of approximately 1.3 billion recreation days at regional and local parks. However, regional and local park visitation could be higher than this estimate (as discussed in Section 2).

Economic Contribution of Outdoor Recreation

The quantifiable economic contribution of outdoor recreation in California primarily results from two types of expenditures: trip-related expenditures and equipment and supply-related expenditures.

Direct expenditures for outdoor recreation. During the study base year of 2008, recreational visitors to California parks and participants in the major recreation activities in California spent over \$20 billion² on trip expenditures and equipment. Trip expenditures include a variety of goods and services such as overnight lodging, restaurant meals, groceries and gasoline. To evaluate the economic contribution from equipment purchases, the study team obtained data regarding the purchases of specific types of sporting goods in year 2008 from the National Sporting Goods Association (NSGA).

The largest expenditure total (almost \$5.1 billion) occurred in the Southern California region, followed by the San Francisco Bay Area region and the Los Angeles region (over \$4 billion in each region). The Central Coast region had the smallest direct recreation expenditures among the seven regions, but still benefitted from almost \$1.2 billion in direct recreation expenditures.

The sources of direct recreation expenditures vary considerably among the regions. The Sierra region had the largest direct expenditures associated with visitation to federally-managed lands, while the Southern California region had the largest amount of expenditures associated with visitation to the SPS. Estimated regional and local park expenditures were greatest in the regions with the largest populations, including the Los Angeles, San Francisco Bay Area and the Southern California regions. Direct expenditures for the selected, major activities — largely driven by boating expenditures — were also largest in these three regions as were total expenditures on outdoor recreation equipment.

Figure ES-3 provides a detailed breakdown of direct, trip and equipment related expenditures by type of facility, activity and region.

Figure ES-3.
Direct Expenditures for Outdoor Recreation in 2008 by Type of Facility, Activity and Region
(in millions of 2008 dollars)

	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Statewide*
Trip-related Expenditures								
Federal lands*	\$35.1	\$350.4	\$320.9	\$441.1	\$607.2	\$1,298.5	\$451.0	\$3,504.3
State Park System*	\$618.5	\$441.5	\$345.8	\$346.5	\$551.5	\$147.6	\$964.4	\$3,416.0
Regional and Local Parks	\$163.4	\$699.3	\$1,499.6	\$64.7	\$1,166.8	\$72.3	\$1,452.3	\$5,118.4
Selected Major Activities**								
Hunting and Fishing	\$38.4	\$93.0	\$48.3	\$192.3	\$178.8	\$19.9	\$217.3	\$788.0
Boating	\$150.2	\$797.0	\$1,007.6	\$137.1	\$882.6	\$130.2	\$994.6	\$4,099.4
Golf at Public Courses	\$28.8	\$57.7	\$81.7	\$8.5	\$69.5	\$20.3	\$125.1	\$391.6
Activities subtotal	\$217.4	\$947.8	\$1,137.6	\$337.9	\$1,130.9	\$170.3	\$1,337.0	\$5,279.0
Equipment Expenditures	\$136.3	\$471.5	\$939.6	\$68.9	\$949.3	\$83.7	\$859.8	\$3,509.1
Total Direct Expenditures	\$1,170.7	\$2,910.4	\$4,243.5	\$1,259.2	\$4,405.8	\$1,772.5	\$5,064.6	\$20,826.8

Note: *Includes agency expenditures for operation and maintenance of recreational facilities.

**Adjusted to exclude proportion of these activities already counted in destination-based analyses above.

Source: BBC Research & Consulting, 2010.

² Throughout the study, all dollars amounts are reported in 2008 dollars.

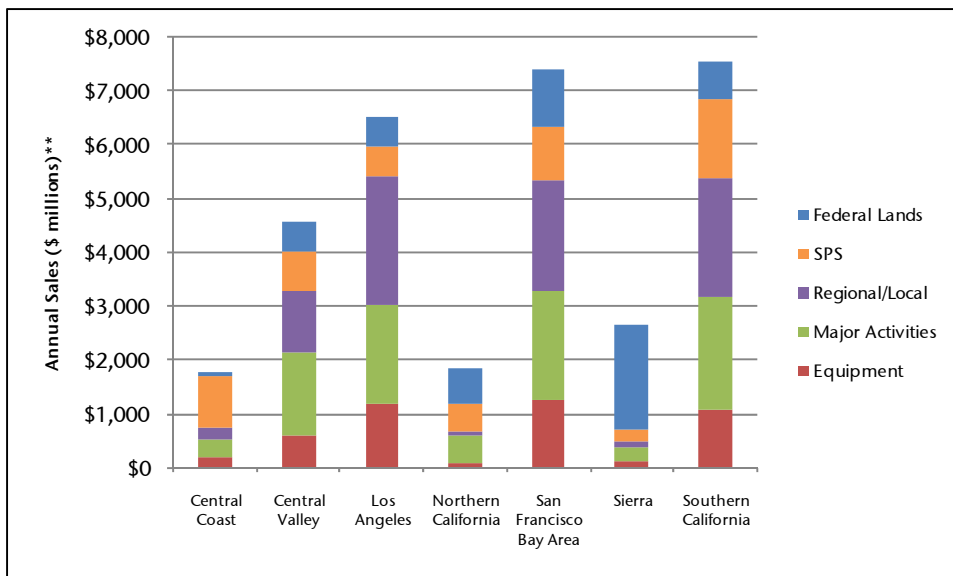
Comparing these direct expenditures to the output, or value of production, of other industry sectors in California³ provides useful context for these results. The approximately \$20.8 billion of direct expenditures related to outdoor recreation ranks among the output of the top 45 sectors (out of 440) in California. Some examples of industries with output of a similar magnitude include aircraft manufacturing (\$20.1 billion); accounting, tax preparation, bookkeeping, and payroll services (\$20.2 billion); and insurance agencies, brokerages, and related activities (\$21.1 billion).

Indirect sales related to outdoor recreation. Including “multiplier” effects as recreation expenditures re-circulate throughout the regional and state economies, direct expenditures on outdoor recreation in California produced an estimated total of nearly \$40 billion in annual statewide sales (gross receipts) across all economic sectors. The regional distribution of the total sales directly and indirectly related to recreation essentially mirrors the geographic distribution of direct expenditures. Multiplier (or secondary) effects consist of indirect and induced effects. Indirect effects represent the economic effects resulting from purchases of goods and services by directly affected industries from other firms. An example would be the wholesale purchases of food and other supplies by gasoline stations that directly service participants of outdoor recreation. Induced effects represent the economic effects stimulated by purchases by employees of directly and indirectly affected businesses. Purchases of groceries and home rental expenditures of the gasoline station employees would be examples.

Figure ES-4 depicts annual total sales related to outdoor recreation by source and region. A portion of the “multiplier effects” that occur as a result of direct expenditures in each region occur in other parts of the state. While these regional spillover effects are captured in the statewide totals, they cannot be attributed to a specific region using the economic modeling developed for this study. Consequently, the sum of total sales across the regions is about 18 percent lower than the \$39.6 billion statewide total. With this in mind, the region-specific total sales estimates understate the full economic effects in each region.

³ The IMPLAN model defines and provides baseline information for 440 unique sectors.

Figure ES-4.
Total Annual Sales Related to Outdoor Recreation by Region
(in millions of 2008 dollars) *



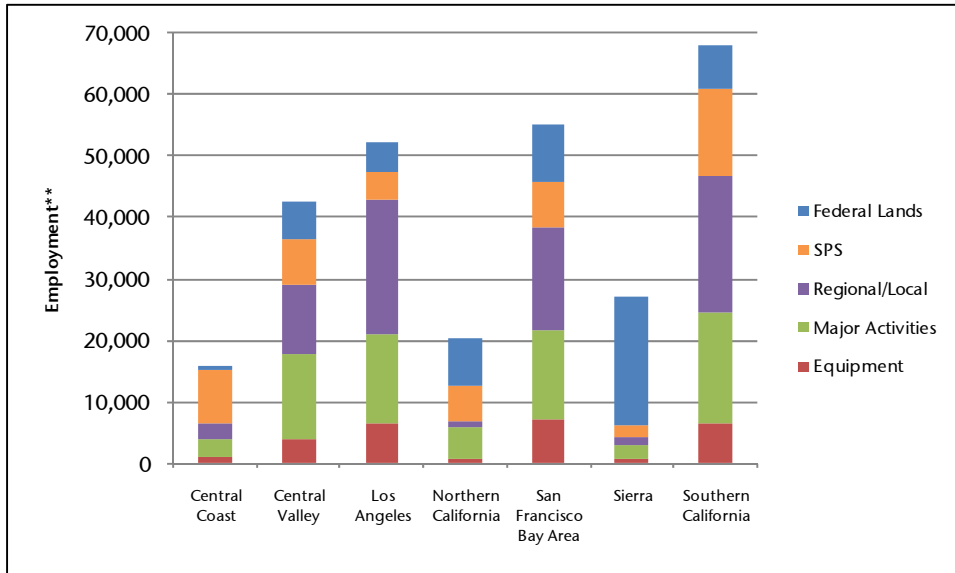
Note: *Regional breakdown does not capture some multiplier effects that spill over across regions. These region-specific estimates understate the actual totals because of multiplier effects that could not be attributed to particular regions.
 **Includes indirect and induced effects, also referred to as “multiplier effects.”

Source: BBC Research & Consulting, 2010.

Jobs supported by outdoor recreation. Outdoor recreation directly and indirectly supported about 313,000 jobs — or about 1.5 percent of all jobs in California in 2008. This total included more than 60,000 jobs in the Southern California region. Each of the seven regions benefitted from at least 15,000 jobs directly and indirectly related to outdoor recreation. Direct expenditures related to outdoor recreation supported approximately 200,000 of the 313,000 jobs. When compared to the number of jobs attributed to specific industry sectors in California, this level of employment ranks among the top 30 sectors (out of 440). Some sectors in California with similar employment levels include the trucking transportation industry (185,000 jobs), legal services sector (222,000 jobs) and firms that support activities associated with agriculture and forestry (222,000 jobs).

Figure ES-5 depicts total employment related to outdoor recreation by source and region. As discussed in connection with total sales, a portion of the “multiplier effects” that occur as a result of direct expenditures in each region occur in other parts of the state. For example, a convenience store in the Southern California region may purchase some of its goods at wholesale from a distributor located in the Los Angeles region. These jobs cannot be attributed to a specific region using the economic modeling developed for this study. The sum of total employment attributable to specific regions (just over 280,000 jobs) is about 10 percent lower than the statewide employment contribution from outdoor recreation. Consequently, the region-specific total job estimates understate the full employment effects in each region.

Figure ES-5.
Total Employment Related to Outdoor Recreation by Region



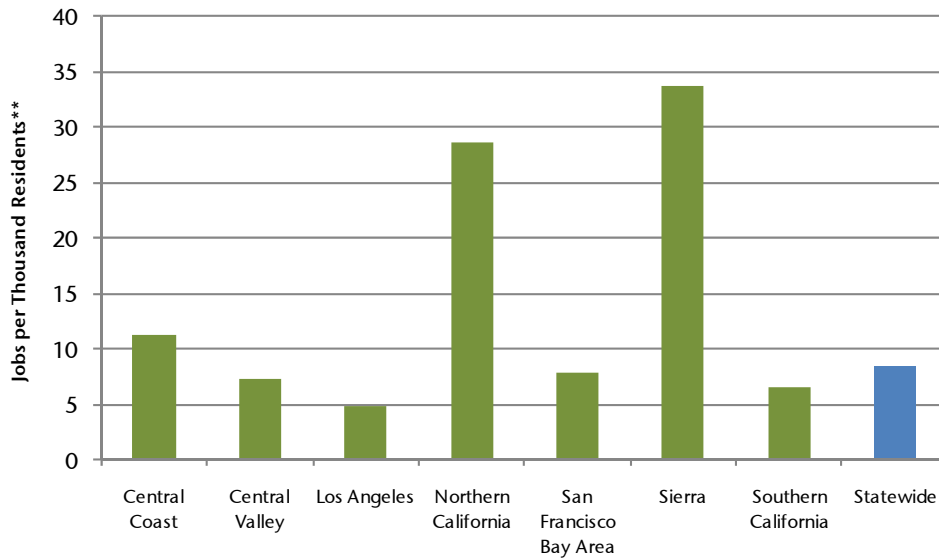
Note: *Regional breakdown does not capture some multiplier effects that spill over across regions. These region-specific estimates understate the actual job totals because of multiplier effects that could not be attributed to particular regions.

**Includes indirect and induced effects, also referred to as "multiplier effects."

Source: BBC Research & Consulting, 2010.

Figure ES-6, on the following page, emphasizes the importance of outdoor recreation to the economies in the more rural regions of California by portraying the total number of jobs related to recreation per thousand residents for each region. In contrast to the preceding figures, the Northern California and the Sierra regions stand out in Figure ES-6. The ratio of total recreation-related employment to total population in both of these regions is more than triple the statewide average.

Figure ES-6.
Total Employment Related to Outdoor Recreation per Thousand Residents
in Each Region



Note: *Regional breakdown does not capture some multiplier effects that spill over across regions. These region-specific estimates understate the actual job totals because of multiplier effects that could not be attributed to particular regions.
 **Includes indirect and induced effects, also referred to as "multiplier effects."

Source: BBC Research & Consulting, 2010.

Economic Benefits Californians Receive from Participating in Outdoor Recreation

The economic benefit of recreation is a different concept from the economic contribution of recreation activities. The term "economic benefits" describes how much people value their own participation in recreation activities, over and above what they have to pay to participate. This concept can also be described in terms of "consumer's surplus," or the amount that individuals would be willing to pay to be able to participate in particular recreation activities (or how much they would be willing to accept to forego participation in those activities).

Estimating the economic benefits of outdoor recreation requires two types of information — estimates of the value that participants receive from each day of participation in a particular recreation activity and estimates of the amount of annual recreation participation by activity-type. The study team made use of three sources of benefit value estimates – a meta analysis of many prior studies conducted for the USFS, California residents' willingness-to-pay responses for specific activities from the SPOA, and the Unit Day Value method developed by the U.S. Army Corps of Engineers.

These three sources provide a relatively wide range of estimates for the values of each particular activity. In general, the USFS benefit values — which are potentially most applicable to recreation participation on federal lands — are the highest among the three sources. The values derived from the SPOA willingness-to-pay questions — which are not specific to a particular recreation setting — are typically the lowest. Based on the average of the values from the three sources, the outdoor recreation activities with the largest daily benefits to participants (over \$30 per day) include sailboating, mountain biking, golfing and backpacking.

Annual benefits of outdoor recreation on federal lands, the SPS, and from the three major categories of activities not fully captured in the state and federal recreation area analyses (hunting and fishing, boating, and golf on public courses) were estimated based on each of the sources of benefit values as well as based on the average benefit value across the three sources. Benefits from recreation at regional and local parks were only estimated based on the SPOA willingness-to-pay responses.

The second type of information required for the benefits analysis was the distribution of activities among visitors to each type of outdoor recreation setting in California. Figure ES-7 shows the distribution of the nearly 90 million annual activity days on federal lands by visitors' primary activities (the activity which primarily led the visitor to travel to the recreation area).

Figure ES-7.
Annual Primary Activity Days at Federal Recreation Facilities (in millions of visitor days)

Primary Activity	Annual Days	Primary Activity	Annual Days
Sightseeing/Non-reported	13.2	Nature Walks/Wildlife	3.0
Hiking & trails	10.5	Biking	3.0
Skiing	6.4	School & Educational	2.9
Camping	5.7	Driving for Pleasure	2.5
Picnicking	5.4	Relaxing/Stargazing	2.3
Photography	5.0	Hunting	1.9
Fishing	4.5	Jogging/Running/Exercise	1.9
Swimming/Beach/Surf/Scuba/Other Water	4.2	Water Skiing/Wakeboarding	0.9
Historical Tourism	3.7	Backpacking	0.8
Other Recreation	3.6	Non-Motorized boating	0.7
Boating/Jetskiing	3.6	X/C Ski/Other Winter non-motorized	0.6
Off-highway Motorized	3.1	Horseback Riding	0.3
Total Primary Activity Days (millions)			89.7

Note: Some federal agencies combined "non-reported" responses into the sightseeing category.

Source: BBC Research & Consulting, 2010 based on data from various federal sources.

Figure ES-8, on the following page, shows the distribution of the nearly 78 million annual activity days at the SPS by primary activity. See Section 3 for further detail regarding these estimates.

Figure ES-8.
Annual Primary Activity Days at SPS Facilities (in millions of visitor days)

Primary Activities	Annual Days	Primary Activities	Annual Days
Relaxing/Stargazing	11.1	Jogging/Running	0.9
Hiking & trails	10.7	Games	0.7
Beach & Tide Pools	7.1	Boating/Jetskiing	0.7
Walking for pleasure	6.9	Photography	0.6
Swimming/Other Water	5.0	SCUBA/Snorkeling	0.2
School & Educational	4.3	Backpacking	0.2
Camping	4.3	Motorcycling/Scooters	0.2
Picnicking	4.2	Rollerblading	0.2
Off-Highway Vehicles	3.3	Bird Watching	0.2
Historical Tourism	2.5	Horseback Riding	0.2
Surfing/Windsurfing	2.0	Float Activities	0.1
Fishing	1.7	Geocaching/GPS	0.1
Road Biking	1.5	Water Skiing/Wakeboarding	0.1
Nature Walks/Wildlife	1.5	Skiing	<0.1
Wildflowers/Other Nature	1.2	Sailboating	<0.1
Basic Snow Activities	1.1	Other Recreation	3.7
Mountain Biking	1.0		
Total Primary Activity Days (millions)			77.6

Source: BBC Research & Consulting, 2010 based on survey data from the SPVS.

Figure ES-9 depicts the estimated distribution of primary activities for the more than 1 billion annual activity days at regional and local parks.

Figure ES-9.
Primary Activity Days at Regional and Local Parks, 2008 (in millions of days)

Source:
 BBC Research & Consulting, 2010 based on survey data from the SPOA.

Primary Activity	Annual Days (Millions)
Walking for pleasure	375
Using play equipment	154
Organized team sports	130
Relaxing/Stargazing	123
Hiking & trails	95
Walking for pleasure	64
Jogging/Running	64
Picnicking	56
Road Biking	32
Fishing	28
Nature Walks/Wildlife	26
Swimming/Other Water	26
Float Activities	17
Tennis	13
Skateboarding	2
Martial arts	1
Other Recreation	85
Total Primary Activity Days	1,293

The study team applied the economic benefit per visitor day estimates for each activity to the estimated annual activity days (by type of activity). The recreational opportunities offered throughout California provide a substantial economic benefit to Californians. Figure ES-10 shows the average estimate of the annual benefit Californians receive from outdoor recreation (based on the three different sources of values per activity day).

Figure ES-10.
Annual Economic Benefit for Californians from Outdoor Recreation
(millions of 2008 dollars)

	Federally-managed Lands	State Park System (SPS)	Regional and Local Parks	Selected Major Activities	Total
Central Coast	\$17	\$239	\$163	\$121	\$541
Central Valley	\$126	\$181	\$700	\$524	\$1,531
Los Angeles	\$197	\$61	\$1,501	\$628	\$2,387
Northern California	\$166	\$93	\$65	\$169	\$493
San Francisco Bay Area	\$377	\$174	\$1,168	\$641	\$2,361
Sierra	\$333	\$72	\$72	\$95	\$572
Southern California	\$218	\$557	\$1,453	\$702	\$2,930
Statewide	\$1,435	\$1,377	\$5,122	\$2,881	\$10,814

Note: The selected major activities including hunting, fishing, boating and golf activities not captured in the data for federally-managed lands and the SPS.
Source: BBC Research & Consulting, 2010.

Using the average of the daily benefit estimates from the three different sources previously, Californians receive an annual benefit from participating in outdoor recreation of just under \$11 billion per year in 2008 dollars. Analyzing the three different sources of values per activity day separately indicates a range for this annual benefit estimate of between \$7 billion and \$16.5 billion per year.

The benefits received from activities at local and regional parks account for over 45 percent of the total overall benefits. This finding reflects the much greater number of recreation visits to local and regional parks and highlights the importance of these facilities for meeting the high demand for local recreational opportunities.

SECTION 1.

Introduction and Background

Introduction

The California Outdoor Recreation Economic Study was conducted by a team led by BBC Research & Consulting (BBC) on behalf of California State Parks (CSP). BBC was assisted in this research by Dr. John Loomis (Colorado State University) and the Robert Thomas Brown Company.

The purposes of this study were to quantify the contribution to the California economy from expenditures on outdoor recreation and the economic benefits that California residents obtain from participating in outdoor recreation. The estimated economic contribution and economic benefits were also examined for different regions of the state and for different types of parks and facilities (e.g., federally-managed lands and parks; the State Park System; regional, county and local parks; and several specific activities that occur both within and outside of defined parks).

This study was conducted over a nine month period in 2010. However, this analysis builds upon years of data collection and prior studies conducted by and for CSP and others. The authors wish to acknowledge the previous work, and in many cases personal assistance, provided by the following organizations and individuals: Sacramento State University, Dr. Daniel Stynes (Michigan State University), the California Department of Boating and Waterways, the U.S. Forest Service, the Bureau of Land Management and the U.S. Fish and Wildlife Service. We are particularly grateful for the thoughtful assistance provided by CSP staff throughout this project.

Related documents. The Literature Review for this study examined available literature and data sources for evaluating economic aspects of recreation in California (see Section 4), while the ***Economic Contribution and Benefits of Recreation in the California State Park System*** (a separate volume) analyzed the economic contribution and benefits of the State Park System (SPS). The economic contribution and benefits of the SPS are summarized in this report as a part of the overall economic contribution and benefits from outdoor recreation in California.

Definition of outdoor recreation. This study focuses on outdoor recreation on public lands and in common spaces. As such, we have defined outdoor recreation to encompass the wide array of participatory recreation activities that people enjoy at places such as local and regional parks, SPS facilities, National Park Service (NPS) facilities and other federally-managed lands including U.S. Forest Service lands (USFS), Bureau of Land Management lands (BLM), and others.

Our definition — and this analysis — generally excludes outdoor recreation at private facilities, such as golf at resorts and country clubs and equestrian activities and horse maintenance at private stables. Attendance at special events held on public lands or common spaces — such as large festivals in public parks, bicycle tours or running marathons — likely has a significant economic contribution in California, but identifying and seeking specific data for the multitude of such events throughout California was beyond the scope of this study.¹ Visitation at zoos, arboretums, outdoor nature museums and gardens involves specialized facilities and is also generally excluded from this study.

With the exceptions just described, outdoor recreation in this study essentially reflects the 39 categories of activities analyzed in the 2009 Survey of Public Opinions and Attitudes on Outdoor Recreation (SPOA) conducted by CSP. The activity categories are listed in Figure 1-1, on the following page, in order of frequency of participation by California residents.

¹ However, festivals and special events affect attendance at locally managed parks and facilities. These effects are likely captured, in part, in the methodology described later in this report, but the additional expenditures that may be associated with such events are not captured in this analysis.

Figure 1-1.
Categories of Outdoor Recreation Activities from 2009 SPOA

Rank	Activity
1	Walking for fitness or pleasure
2	Jogging and running for exercise
3	Bicycling on paved surfaces
4	Driving for pleasure, sightseeing, driving through natural scenery
5	Swimming in a pool
6	Wildlife viewing, bird watching, viewing natural scenery
7	Using play equipment, play structures, tot-lots
8	Beach activities
9	Outdoor photography
10	Organized team sports (e.g., soccer, football, baseball and basketball)
11	Day hiking on trails
12	Using open turf areas (casual and unstructured activities)
13	Picnicking in picnic areas (with tables, fire pits, or grills)
14	Visiting historic or cultural sites
15	Attending outdoor cultural events
16	Visiting outdoor nature museums, zoos, gardens or arboretums
17	Swimming in freshwater lakes, rivers and/or streams
18	Bicycling on unpaved surfaces and trails (mountain biking)
19	Fishing - freshwater
20	Camping in developed sites
21	Golf
22	Skateboarding (skate parks, paths, sidewalks)
23	Surfing or boogie boarding, windsurfing
24	Tennis
25	Off-highway vehicle use (motorcycles, 4-wheel drive, ATV)
26	Backcountry activities (e.g., mountaineering and rock climbing)
27	Motor boating, personal watercraft (e.g., jet skis and waterskiing)
28	Target shooting (including pistol and skeet)
29	Fishing - saltwater (includes catching abalone, clams, crabs, etc.)
30	RV/trailer camping with hookups
31	Horseback riding, horse shows and events
32	Sail boating
33	Paddle sports (e.g., kayaking, rowing, canoeing and rafting)
34	Hunting (large or small game with a firearm)
35	Backpacking (overnight hiking)
36	Snowboarding
37	Downhill (Alpine) skiing
38	Cross-country skiing
39	Snowmobiling

Source: BBC Research & Consulting, 2010 based on analysis of data from SPOA mail-back survey question 2.

California regional definitions. The state was divided into seven regions for purposes of reporting study results. The regional definitions are consistent with those currently used by CSP to analyze the SPOA. Figure 1-2 illustrates the seven regions. A list of the counties included in each region is provided in Appendix A.

**Figure 1-2.
California Regions**



The remainder of this report is divided into the following components:

- California residents' participation in outdoor recreation (this section);
- General study methodology (this section);
- Economic contribution analysis (section 2);
- Economic benefits analysis (section 3); and
- Literature review (section 4).

California Residents' Participation in Outdoor Recreation

A logical starting point for the economic analysis is to examine the overall extent and magnitude of outdoor recreation participation in California. Two questions from the mail-back survey portion of the 2009 SPOA provide important information related to this issue.

Question 4 asked respondents: ***During the past year, how many days did you visit each of the following types of outdoor recreation areas?***

- Highly developed parks and recreation areas: In or near urban areas that may include playgrounds, sports facilities, and highly developed beaches; for example, city parks ...
- Developed nature-oriented parks and recreation areas: Located outside or on the fringe of urban areas, including trails, picnic areas, campgrounds, and information centers. Generally includes national, state, large county and regional parks, beaches, reservoirs, and state and national recreation areas ...
- Historical or cultural buildings, sites, or areas: Regardless of location ...
- Natural and undeveloped areas: Large areas in a natural or nearly natural condition, with few developments; for example, forests, deserts, mountains, wetlands, and seashores ...

The responses to question 4, coupled with basic demographic data for California, provide insight into the total annual days of recreation activity that occur at parks and publicly managed lands in California.²

Question 2 provided respondents with the list of outdoor recreation activities shown previously in Figure 1-1. Respondents were asked: ***For each activity below, please estimate the total number of days you participated in that activity during the past 12 months. This includes days when you only participated in an activity for a short period of time ...***

The responses to question 2 provide information on how frequently Californians participate in each type of activity. Coupled with demographic data, question 2 is also useful in developing estimates of overall participation in outdoor recreation by Californians. To develop this overall estimate, however, we have to adjust for the fact that many respondents participated in multiple outdoor activities on the same day. One indicator of the extent of this issue is that when the days of participation in each activity are added together, 247 of the 1,227 respondents to the mail-back survey indicated total participation in recreation activities totaling more than 365 days during the prior year.

In light of the issue of multiple activity participation, the study team adopted an approach designed to develop a conservative estimate of the number of days that the average adult Californian participates in outdoor recreation. We estimated the total number of annual outdoor recreation activity days for respondents in the SPOA data set to be either the number of days that they participated in their most frequent outdoor activity or the sum of their visits to outdoor recreation areas (question 4), whichever was greater. This approach implicitly assumes that all of the participants' outdoor activities other than

² Technically, the estimates of total park/public lands visitation derived from the responses to questions 2 and 4 reflect the days that Californians visited these types of facilities ***inside or outside of California***. However, visitation by Californians to parks/facilities outside of California is likely approximately offset by visitation by out of state residents to California facilities.

the activity they engage in most frequently occur in conjunction with their most frequent activities (on the same days). As such, it likely understates outdoor recreation participation to some extent.

Statewide outdoor recreation participation. Based on the approach just described, we estimate that the average adult Californian participates in some type of outdoor activity during **at least** 96 days per year. We tested this estimate by comparing it to data provided in the Outdoor Foundation's (OF's) **Outdoor Recreation Participation Report 2009**. Developing a valid comparison, however, required adjusting our definition of outdoor recreation (and the estimated frequency of outdoor recreation participation) to match the more restrictive definition of outdoor recreation used in the OF report. The OF analysis includes only 22 of the 39 categories of outdoor recreation activities included in this study and excludes six of the top ten outdoor activities based on the SPOA survey (including walking for fitness and pleasure, driving through natural scenery, swimming in a pool, etc.).

Using the same data and approach used to derive our estimate of **at least** 96 days of outdoor recreation participation per year, we estimate the average Californian spends **at least** 37 days per year participating in **only** the activities included in the OF study. In comparison, the OF study estimated that 48 percent of the residents in the Pacific Region (including California) participated in the outdoor recreation activities included in their survey, and the average participant had about 85 outdoor outings per year. Multiplying the participation rate (48%) by the number of outings (85) leads to an estimated average annual participation rate in OF-type outdoor activities of about 41 days per year for residents of the Pacific Region. The similarity between the OF participation rate estimate (41 days per year) and the estimate of participation for the subset of outdoor recreation activities included in the OF study based on our analysis of the SPOA data (**at least** 37 days per year) helps substantiate the overall estimate of **at least** 96 days per year for the broader set of outdoor activities included in this study.

Figure 1-3 combines the analyses of responses to SPOA question 2 and question 4 with basic demographic data to portray the number of days that the average Californian participates in recreation in various settings, and the estimated total number of recreation days at different types of locations across California. Based on California's population of about 27.4 million adults in 2008, we estimate a total of approximately 2.6 billion days of outdoor recreation by adults during that year. Assuming children participate in outdoor recreation with the same frequency as adults, there were an estimated 3.5 billion days of outdoor recreation participation by California residents in 2008. The assumption that children participate in outdoor recreation with the same frequency as adults may underestimate children's participation in outdoor recreation activities. The Outdoor Foundation's Outdoor Recreation Participation Report 2009 indicates that participation rates for the age groups of 6-12 and 13-17 are higher than participation rates for adults. Anecdotally, it seems likely that children participate in recreation at local parks and outdoor recreation facilities more frequently than adults. However, available data are not sufficient to reliably estimate differences in outdoor recreation participation by age for different types of outdoor recreation facilities (e.g. federally-managed facilities, the SPS, regional and local parks).³

³ SPOA questions 2 and 4 specifically pertain to adult recreation participation. Based on the SPOA, it is not possible to determine whether children and youth participation in outdoor recreation is higher or lower than adult participation.

By comparing the responses to the SPOA question regarding the frequency of visits to various types of parks with the responses to the question regarding the number of days of participation by type of outdoor activity, we estimate that almost 44 percent of Californians' recreation days (1.5 billion recreation days in total) took place outside of parks — primarily including activities like walking for fitness and pleasure, jogging or running, bicycling on paved surfaces and similar types of activities. An estimated 27 percent of outdoor recreation participation (almost 1 billion total recreation days) took place in local parks. The remaining 29 percent of recreation participation was divided between regional, state and national parks and facilities; natural and undeveloped areas; and historic and cultural buildings and sites.

Figure 1-3.
Estimated Average Annual Outdoor Recreation Participation for Californian Residents

Type of Location	Adult Average Days per Year	Statewide Annual Participation Days	
		Adults Only (Millions)	Including Children (Millions)
Not in a park*	42 **	1,151	1,544
Local park	26	712	956
Regional, state or national park	13	356	478
Historical or cultural building or area	5	137	184
Natural and undeveloped areas	10	274	368
Total	96 **	2,630	3,529

Notes: *These are primarily activities conducted near home such as walking for fitness and pleasure, bicycling on paved surfaces, swimming in home pools, jogging/running and similar activities.

**Minimum estimate as described in narrative, actual totals may be larger.

Source: BBC Research & Consulting, 2010 based on analysis of data from SPOA mail-back survey questions 2 and 4 and California demographics from the 2008 American Community Survey 1-year estimates.

Participation in outdoor recreation also appears to differ across California.⁴ Residents of the most rural regions of the state — Central Coast (CC), Northern California (NC) and Sierra regions — average more days of outdoor recreation per year than residents of the more urbanized regions including Los Angeles (LA), San Francisco Bay Area (SF), Southern California (SC) and Central Valley (CV) regions. However, in the most rural regions a larger share of outdoor recreation takes place outside of formal park settings and less recreation occurs in local parks. Figure 1-4 compares estimated average outdoor recreation participation for residents of the most rural regions of California with participation by residents of the more urbanized regions and the statewide average.

⁴ Given the relatively small size of the sample of SPOA respondents from the most rural regions (167 respondents), these differences are not statistically significant at a 90 percent confidence level or greater.

Figure 1-4.
Variation in Adult Outdoor Recreation Participation across California

Type of Location	Average Days of Participation per Adult		
	Most Rural Regions*	Other Regions*	Statewide
Not in a park	56 **	41 **	42 **
Local park	17	27	26
Regional, state or national park	14	13	13
Historical or cultural building or area	6	5	5
Natural and undeveloped areas	17	8	10
Total	110 **	94 **	96 **

Notes: * “Most rural regions” includes the CC, NC and Sierra regions. “Other regions” includes LA, SF, SC and CV.
 **Minimum estimate as described in narrative, actual totals may be larger.

Source: BBC Research & Consulting, 2010 based on analysis of data from SPOA mail-back survey questions 2 and 4.

General Study Methodology

The Literature Review for this study included an extensive review of prior studies regarding the economic aspects of outdoor recreation in California and elsewhere in the United States and an evaluation of the data sources available for this analysis. The methodology for this study was designed to:

- Estimate the contribution of outdoor recreation to the California economy;
- Estimate the benefits that California residents receive from participating in outdoor recreation; and
- Develop estimates of the economic contribution and economic benefits of recreation at the regional level as well as the statewide level.

Economic contribution of outdoor recreation. This study endeavors to quantify the *economic contribution* of outdoor recreation occurring on public lands and in common spaces throughout California. At the outset, it is important to distinguish the concept of *economic contribution* from the related concept of *economic impact*. An economic impact study focuses on activities that bring new money into a community, region or state. As such, an economic impact analysis of recreation would count only the expenditures of non-local visitors to parks or other recreation facilities (and associated “multiplier effects” as these new dollars re-circulate in the economy). An economic contribution study, however, focuses more broadly on estimating the total economic activity (e.g. jobs, revenues, personal income) that currently depends on an industry or event such as outdoor recreation — including spending by both local and non-local visitors. If outdoor recreation opportunities in California ceased to exist tomorrow, it is likely that a portion of the money spent by California residents on outdoor recreation in the state would continue to be spent in California on other purchases or activities (though recreation trips and spending out of state would undoubtedly increase greatly).⁵ However, the individuals that are currently directly employed by recreation-related spending

⁵ Recreational opportunities also have important, unquantifiable benefits in California. The extensive recreational opportunities available in the state are also, undoubtedly, one of the reasons that many residents choose to live in California.

in California (and some of the individuals indirectly employed by that spending) would have to find employment in other types of businesses or sectors and, in some cases, in other locations.

The quantifiable economic contribution of outdoor recreation in California primarily results from two types of expenditures: trip-related expenditures and equipment and supply-related expenditures. To estimate the economic contribution of recreation-related spending in California by region of the state, and to make use of the best available data, the economic contribution analysis begins with estimated visitation at the federally-managed lands and SPS facilities in each California region. Average expenditures per visitor (expenditure profiles) are then applied to visitation totals to estimate total direct recreation-related spending tied to these facilities and locations. In combination with agency expenditures for operations and maintenance related to recreation, direct visitor expenditures are then incorporated into regional and statewide economic models to estimate secondary economic effects (multiplier effects) as the direct expenditures re-circulate throughout the economy.

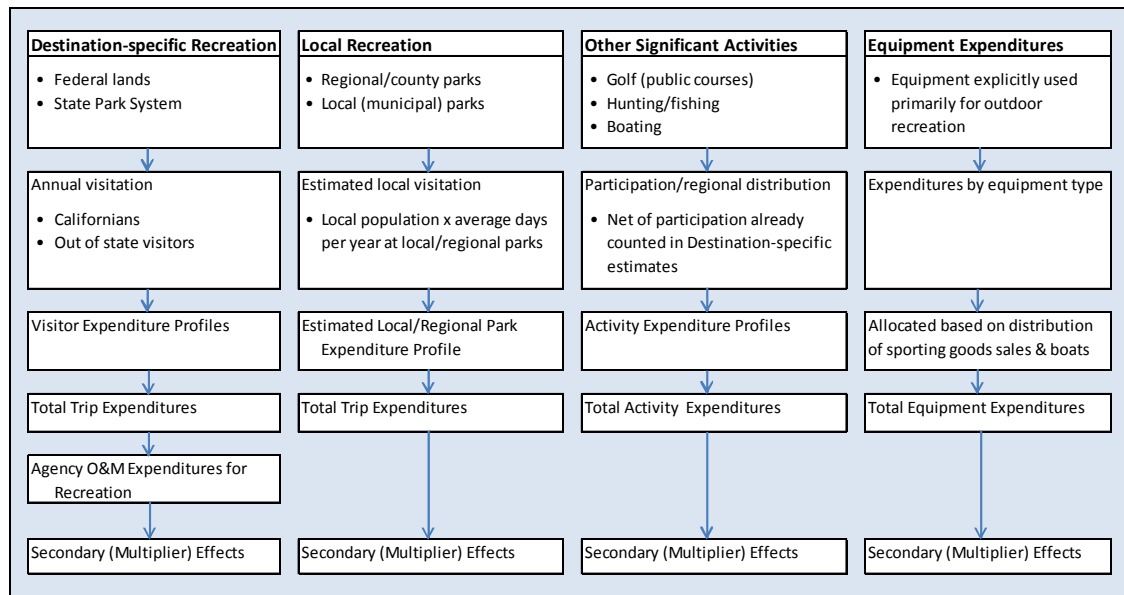
A conceptually similar approach was used to estimate the economic contribution of recreation activity at regional, county and local parks. However, unlike the federal and state-managed facilities, there is no comprehensive or consistent data available regarding visitation or visitor expenditures at locally-managed parks. In place of facility specific data, estimates of visitation to the combination of regional, county and local parks in each region were based on the average number of days that adult Californians visit these types of facilities (as shown in Figure 1-4) and the number of adults and children residing in each region. Estimated expenditures profiles for regional and local park visitation were developed based on analysis of a carefully selected subsample from the State Park Visitor Survey (SPVS) conducted by CSP and California State University at Sacramento — described in more detail later in this report. Given this approach — mandated by the limited data available for locally-managed parks — the estimates of the economic contribution from regional, county and local parks are inherently more uncertain than the estimates for federal and state-managed facilities. The estimates of the economic contribution from visitation to locally-managed parks are conservative (potentially understated) because they do not include visits by out-of-state residents due to the lack of data available to estimate the number of these visitors.

Three categories of participatory outdoor recreation activities on public lands and common spaces that contribute significantly to California's economy are not fully captured in the preceding analysis. The study team developed separate estimates of participation and expenditures for golf on public courses, hunting and fishing, and boating — and then deducted the proportion of those activities (and their expenditures) already included in the federal and state economic estimates.

Finally, Californians also spend a significant amount of money on outdoor recreation equipment. These expenditures cannot readily be attributed to individual trips to specific facilities. Instead, these expenditures were estimated based on data from the National Sporting Goods Association and the National Marine Manufacturers Association.

Figure 1-5, on the following page, provides a flowchart summarizing the overall methodology for the economic contribution estimates. More specific details regarding methods and data sources for each component are provided throughout the remainder of this report.

Figure 1-5.
General Study Methodology for Estimating the Economic Contribution of Outdoor Recreation



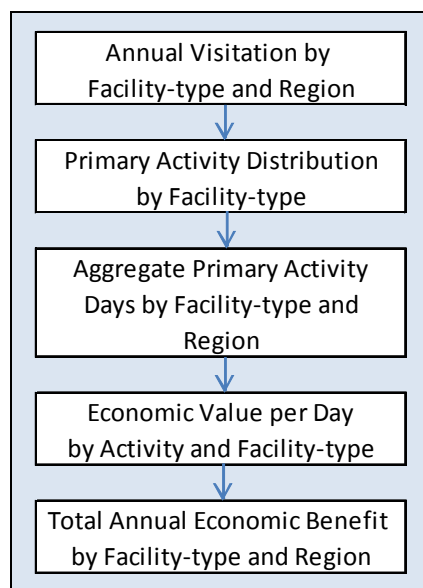
Apart from recreation at privately managed facilities and spending at large special events, one other significant component of the recreation-related economy was not included in this study. California includes a number of recreation equipment and apparel manufacturers. To the extent that the production from those manufacturers is sold to Californians, such manufacturing is captured in the economic modeling conducted for this study. However, exports of California-made recreational equipment and apparel to other states and countries are not included in this study's economic contribution estimates.

Economic benefits from outdoor recreation participation. The economic benefit of recreation is a different concept from the economic contribution (or economic impact) of recreation activities. The term “economic benefits” describes how much people value their own participation in recreation activities, over and above what they have to pay to participate. This concept can also be described in terms of “consumer’s surplus” or the amount that individuals would be willing to pay to be able to participate in particular recreation activities (or how much they would be willing to accept to forego participation in those activities). For example, if a hypothetical Californian is willing to pay \$55 to go fishing for a day, but the actual cost of their fishing trip is only \$30, they receive a net economic benefit of \$25 per day from their fishing experience.

Compared to the economic contribution analysis, the general methodology for analyzing the economic benefits of recreation is relatively straightforward. In essence, the economic benefits analysis requires two things — estimates of recreation participation by activity-type and facility-type (e.g. federal lands, SPS facilities or local parks) and estimates of the corresponding value that participants receive from each day of participation in a particular activity. By multiplying the aggregate number of days that Californians participate in specific activities at the various types of public parks and common spaces by the corresponding value per “activity day” for each activity and type of facility,

total economic benefits can be estimated for those recreation facilities. The general methodology for this analysis is shown in Figure 1-6.

Figure 1-6.
General Study Methodology for Estimating the Economic Benefits of Outdoor Recreation



Caveats and limitations. This study is based on the best available data concerning outdoor recreation participation and expenditures in California. There are, however, a number of important caveats and limitations regarding this analysis.

Interpretation. This analysis estimated the economic *contribution* of outdoor recreation trips, equipment expenditures and park operating expenditures (excluding operating expenditures for local and regional parks). However, if outdoor recreation was not available in California, some portion of the visitor and equipment expenditures made by Californians would likely still be spent in California. For example, if visiting a state park was not an available opportunity, an individual may still spend at least a portion of their money on another related or unrelated activity in California. Such expenditures would still *contribute* to the California economy. However, in the absence of opportunities to recreate in California, it is likely that more recreation expenditures would be diverted to other states.

Economic effects not quantified in this analysis. This type of analysis does not fully capture the benefits of outdoor recreation to the California economy. The state's abundant recreation resources and opportunities are obviously an important part of the quality of life in California and a primary reason that many people choose to live and work in California.

For example, participation in outdoor recreation also provides important health and quality of life benefits. Resources for the Future's (RFF) 2009 report titled *Outdoor Recreation, Health, and Wellness* and CSP's 2005 report titled *The Health and Social Benefits of Recreation* provide extensive reviews of this issue — touching on topics from general mental health to childhood obesity. Other studies have attempted to quantify these benefits. For instance, in its 2009 report *Measuring the*

Economic Value of a City Park System, the Trust for Public Lands estimated the difference in medical costs for adults that are physically active, and those that are not, at \$250 per year for individuals under 65 and \$500 per year for individuals over 65. These health benefits would be applicable to many types of outdoor recreation, not just the use of city parks. In a study of West Virginia counties published in 2005, researchers found evidence that counties with lower rates of physical activity have higher expenditures on health care treatments of diseases and disorders of the circulatory system.⁶

Prior studies have also demonstrated that proximity to local, state and federal parks often increases property values for nearby residents and businesses — with positive property value impacts being most substantial in urban settings. Crompton (2001) and Crompton (2005) reviewed around 30 studies from the past two decades related to this topic in the context of urban parks and concluded that “a positive impact of 20% on property values abutting or fronting a passive park is a reasonable starting point guideline for estimating such a park’s impact.” This finding is supported by the 2009 Trust for Public Lands report which estimated that proximity to parks in Washington D.C. increased nearby residential property values by nearly \$1.2 billion. Other studies have documented similar increases in value for properties in proximity to national forests and other types of undeveloped, public lands (see, for example, Lutzenhiser and Netusil, 2001 and Thorsnes, 2002).

These types of effects may be at least as important as the direct economic contribution from the expenditures of recreation participants, but were outside the scope of this study.

Data and analytical limitations. Studies of this nature contend with a variety of issues related to the quality and availability of visitation and expenditure data. Common concerns with visitation data include double counting of visitors, ability to estimate visitation at facilities with little or no access control and different methods used by various facilities. The primary limitation of expenditure data is often the lack of specific data for particular facilities or facility types. Thus, the expenditure data that is available must be generalized and applied to a wide range of recreation facilities that may differ in a variety of ways from the facilities included in the original expenditures studies. The extent of these issues varies across the many data sources used by BBC in this study.

The study team considers the following types of data to be the most reliable:

- State park visitation and operating expenditures from CSP’s Annual Statistical Reports;
- State park visitor expenditures profiles derived from CSP’s SPS visitor expenditure surveys;
- Visitation data for federal facilities (though this data is best for the NPS facilities where entry is controlled, and is less reliable for USFS, BLM, Corps and NWR lands and facilities);
- Expenditure data for visitation to federal facilities;
- Data from the US Fish & Wildlife Service’s National Survey of Fishing, Hunting and Wildlife-associated Recreation (FHWR); and
- Equipment expenditure data from the National Sporting Goods Association and National Marine Manufacturers Association.

⁶ Rosenberger, R., et. al. “A Spatial Analysis of Linkages between health Care Expenditures, Physical Inactivity, Obesity and Recreation Supply.” *Journal of Leisure Research*. Volume 37, Number 2, 2005.

The following data are also of generally good quality, but are deemed somewhat less reliable than the preceding information because of the age of the original sources, the adjustments required to fit the definition of outdoor recreation used in this study or the variation in values among various sources:

- Boating participation, trip and ownership expenditures;
- Golf participation and expenditures for publicly-owned courses; and
- Estimated economic benefits per visitor day by activity type.

The most uncertain data and estimates used in this study relate to visitation, activity types and expenditures at local and regional parks. Annual visitation to these types of facilities was derived by comparing estimated of overall outdoor recreation participation from the SPOA with the visitation accounted for by federally-managed lands and the SPS. Estimates of the economic benefits, and particularly the economic contribution, from local parks are based in part on data from the SPOA but also rely heavily on professional judgment.

Expenditures for outdoor recreation were converted into estimated regional and statewide economic contributions using the IMPLAN input-output modeling system. IMPLAN is the most widely used tool for this type of analysis and is well accepted. However, there are a number of theoretical limitations regarding input-output models, including their incorporation of nationally derived production functions. The results predicted by these types of models are also challenging to verify. However, this study does provide some comparative information from a number of other recreation-related studies in Section 2 to help the reader evaluate the reasonableness of the economic contribution estimates derived by the study team.

SECTION 2.

Economic Contribution from Outdoor Recreation in California

This section describes the annual contribution of outdoor recreation to California's economy and the economies of seven distinct regions within the state. As described in Section 1, this study defined outdoor recreation to include only activities occurring on public lands and in common spaces.

The following narrative discusses the annual economic contribution of these activities in terms of direct travel and equipment-related expenditures by recreation participants and direct spending for operations and maintenance of state and federal recreation facilities. The purchase of gasoline as part of a trip to a California National Park would be an example of a direct effect as would the purchase of a fishing rod. Typically, participants use purchased outdoor recreation-related equipment on multiple occasions over several years. Thus, the study team incorporated annual equipment-related expenditures by including only purchases made during 2008.

The "multiplier effects" of these direct expenditures in supporting business sales and employment, as the dollars re-circulate throughout the economy, are also estimated and described in this section. Using the IMPLAN® input-output modeling system, the study team estimated two types of multiplier (secondary) effects:

- **Indirect** the economic effects resulting from purchases of goods and services by directly affected industries from other firms. Related to the example above, indirect effects of gasoline purchased by a National Park visitor would be the wholesale purchases of food and other supplies by gasoline stations that directly service that visitor.
- **Induced** the economic effects stimulated by purchases by employees of directly and indirectly affected businesses. Purchases of groceries and home rental expenditures of the gasoline station employees would be examples of induced effects.

This study begins with the team's analysis of recreation at federally-managed lands in California, and then describes the economic contribution from recreation at the State Park System (SPS), regional and local parks. The additional economic contribution from several activities that are not fully captured in the destination-specific analysis are described next, followed by outdoor recreation-related equipment expenditures. The section concludes by combining the preceding information into overall estimates of the statewide and regional economic contribution from outdoor recreation.

Economic Contribution from Recreation at Federally-managed Facilities

The following discussion provides a summary of the economic contribution from recreation at California facilities managed by various federal agencies including the National Park Service (NPS), the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), the Army Corps of Engineers (Corps) and the U.S. Fish and Wildlife Service's National Wildlife Refuges (NWR).

Annual visitation at federally-managed lands. Federally-owned and managed lands cover millions of acres in California. Several agencies, each with different missions and goals, manage these lands and, to varying degrees, offer access and facilities for outdoor recreation. The NPS, USFS, BLM, Corps and NWR each manage multiple recreation facilities and areas in California.¹ Each of these agencies has a system in place to estimate recreation-related visitation. However, the frequency, availability and quality of the data vary across agencies. BBC collected the most recent and detailed visitation data available from each agency to estimate overall annual visitation on federally-managed lands in California by region. When possible, BBC collected data for multiple years and estimated the average annual visitation to reduce variation due to factors such as drought, wildfires or park construction activities. The overall estimates are based on visitation during the years 2005 through 2009.

On average, federally-managed lands in California host almost 90 million recreational visitor days annually. Each visitor day represents one day that a visitor spends at the recreation area. For example, a family of four that spends 3 days and camps for 2 nights would represent 12 visitor days. Almost three-quarters of the annual recreation visitation to federally-managed lands in California occur at NPS facilities and on lands managed by the USFS.

BBC also estimated the number of visitor days at federally-managed lands by region. All visitation data was reported at the facility/recreation area-level. BBC used GIS software to identify the region(s) that encompass each recreation area. In some cases, the recreation area crossed multiple regions. BBC allocated the visitation for these recreation areas to regions based on the proportion of the recreation area located within each region. Figure 2-1 shows the estimated visitor days to federally-managed lands by region.

**Figure 2-1.
Visitation to Federal-
managed Lands by
Region**

Source:
BBC Research & Consulting, 2010 based on
data from NPS, USFS, BLM, Corps and NWR.

	Visitor Days (thousands)
Central Coast	1,144
Central Valley	7,594
Los Angeles	11,883
Northern California	10,455
San Francisco Bay Area	24,542
Sierra	20,491
Southern California	13,577
Overall	89,687

The San Francisco Bay Area region receives just over one-quarter of all recreation visits to federally-managed lands in California. Almost 95 percent of this visitation occurs at NPS facilities with over 14 million visits to Golden Gate National Recreation Area alone. About two-thirds of the visits to the

¹ There are several Bureau of Reclamation (Reclamation) projects in California which offer outdoor recreation opportunities. Reclamation has been directed by the U.S. Congress “to coordinate the recreation use at its water projects with the use of existing and planned Federal, State, or local public recreation developments and to encourage non-Federal public bodies, or other Federal agencies, to manage recreation at Reclamation project areas” (see <http://www.usbr.gov/recreation/partners.html>). As such, recreation facilities at Reclamation projects in California are generally managed by other federal agencies, CSP or county or local agencies.

Sierra region, the second most visited region for recreation on federally-managed lands, were to USFS-managed lands such as those located in the Lake Tahoe Basin and the Tahoe field offices.

Visitor trip expenditures for federally-managed lands. During trips to federally-managed recreation areas, visitors purchase a variety of goods and services such as overnight lodging, restaurant meals, groceries and gasoline. The economic contribution of these purchases can be directly attributed to the recreational opportunities made available on these lands. Several studies have been completed on the economic impact of recreation at federally-managed lands. These studies contain information on trip expenditures by visitors — typically in the form of expenditure profiles which describe average trip expenditures broken down into various spending categories. In general, these expenditure profiles are based on survey data collected from visitors at a sample of the recreation areas being considered in the study which are then generalized to the system as a whole. Some studies develop multiple expenditure profiles to describe the variation in spending patterns across visitors (e.g., day trip visitor versus camper) and facility type (e.g., historic versus nature or urban versus rural). BBC collected expenditure profile data from various studies and identified the data applicable to this study. Below is a summary of the sources of these data:

- Dr. Daniel Stynes and Dr. Dennis Propst develop annual system-wide and state-level visitor spending and payroll impact estimates for the NPS (see <http://web4.msue.msu.edu/mgm2/>). Dr. Daniel Stynes provided BBC with the expenditure profiles used to estimate 2008 visitor spending impacts from visitation at NPS facilities in California.
- Dr. Stynes and Dr. Eric White developed expenditure profiles for the USFS. These data are available in the report ***Spending Profiles of National Forest Visitors, NVUM Four Year Report***. The USFS National Visitor Use Monitoring Program has published forest-level visitor use reports that contain data needed to apply these expenditure profiles to specific forests. See <http://www.fs.fed.us/recreation/programs/nvum/>.
- The report ***Recreation Visitor Spending Profiles and Economic Benefit to Corps of Engineers Projects*** contains expenditure profiles applicable to recreation at Corps' facilities. See <http://el.ercd.usace.army.mil/elpubs/pdf/trel03-21.pdf>.
- FWS's report ***Banking on Nature 2006: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation*** includes expenditure profiles applicable to NWRs. See <http://www.fws.gov/refuges/about/bankingonnature.html>.

BBC combined facility-level visitation data with this extensive set of expenditure profile data to derive total visitor expenditure estimates for each of the federal facilities considered in this study. All expenditure data were updated to 2008 dollars. In addition, BBC removed expenditures related to entrance fees. These fees represent a form of revenue for the managing agency and do not directly contribute to the local economy. A large share of this revenue may ultimately contribute to local economy in the form of operating expenditures.² Total operating expenditures were estimated separately, as discussed subsequently.

² For example, under the Federal Lands Recreation Enhancement Act (FLREA), federal facilities retain 80 percent of the entrance fees revenues they collect for use at their facility.

BBC aggregated the estimated facility/recreation area total visitor expenditures to regions. Statewide annual visitor expenditures were estimated to be approximately \$3.3 billion — resulting in an average expenditure per visitor per day of about \$36.80. Figure 2-2 shows these estimates by region.

Figure 2-2.
Total Annual Visitor Expenditures for Federally-managed Lands by Region (2008 dollars)

Source:
 BBC Research & Consulting, 2010 based on data from NPS, USFS, BLM, Corps and NWR.

	Annual Visitor Expenditures (millions)
Central Coast	\$30.9
Central Valley	\$326.5
Los Angeles	\$296.4
Northern California	\$412.1
San Francisco Bay Area	\$564.0
Sierra	\$1,242.0
Southern California	\$429.1
Overall	\$3,300.9

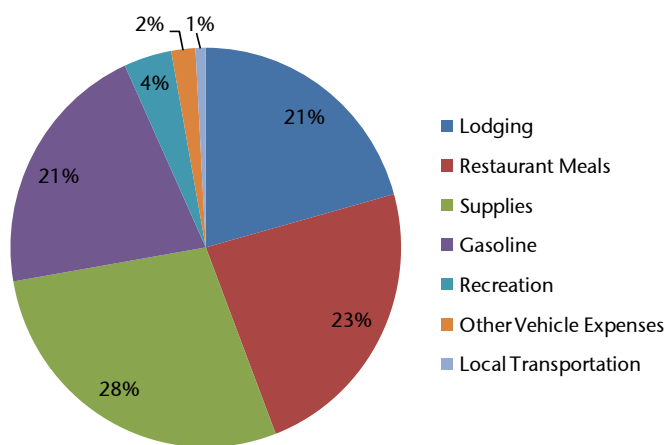
About 40 percent of the total annual visitor expenditures from visitation to federally-managed lands occur in the Sierra region. This proportion is the highest among all the regions and is well above the region’s share of total visitation (about 23 percent). The San Francisco Bay Area region attracts the highest proportion of visitors (about 27 percent), but only about 17 percent of the total visitor expenditures (still the second highest share among all regions). These estimates indicate that the average visitor spends about \$61 per day when recreating on federal lands in the Sierra region compared to about \$23 per day in the San Francisco Bay Area. This result likely partially reflects the higher trip expenditures of visiting more remote areas compared to visiting recreation facilities in an urban setting. This finding is generally consistent across all the regions. Furthermore, the relatively high average estimate of expenditures per day for the Sierra region may also be partly driven by extensive downhill skiing and snowboarding in this region.

Figure 2-3 shows the distribution of total visitor expenditures across spending categories.

Figure 2-3.
Total Expenditures by Spending Category for Visitation to Federally-managed Lands

Note:
 The “supplies” category generally includes expenditures on groceries, souvenirs and other items typically purchased at retail stores.
 The “recreation” category generally includes expenditures on equipment rentals and activity fees such as guide fees.

Source:
 BBC Research & Consulting, 2010.



Visitors to federally-managed lands spread their expenditures across various sectors. Expenditures on supplies, such as groceries, represent the greatest share of visitors’ purchases (28%). However, only slightly lower shares were spent on restaurant meals (23%), lodging (21%) and gasoline (21%).

Operating expenditures for federally-managed lands. BBC estimated the combined annual operating expenditures of the NPS, USFS, BLM, Corps and NWR related to recreation on the lands they manage in California. These estimates were based on data for fiscal years 2008 and 2009. The following sources provided the relevant data:

- U.S. Department of the Interior – NPS: park operational base summary for California.
- U.S. Department of Agriculture – Forest Service Budget Justification: Nation Forest Service’s Region 5 (California) budget for “recreation, heritage and wilderness.”
- BLM Budget Justification: “Recreation resources management” budget for California.
- Civil Works Budget for the U.S. Army Corps of Engineers: California system operation and maintenance budget for “recreation.”
- NWR: Refuge allocations for “visitor services.”

Based on these data, BBC estimated the average annual operating expenditures related to recreation on federally-managed lands to be approximately \$203 million.

BBC allocated statewide operating expenditures for USFS, BLM and Corps to regions based on the regional distribution of visitor fee expenditures for these types of facilities derived from the trip expenditure profiles described previously. NPS and NWR operating expenditure data was reported at the facility-level and, thus, could be allocated directly to regions. Figure 2-4 summarizes the total operating expenditures by region.

**Figure 2-4.
Summary of Annual
Operating Expenditures
for Recreation at
Federally-managed Lands
(2008 dollars)**

	Annual Operating Expenditures (millions)
Central Coast	\$4.2
Central Valley	\$23.9
Los Angeles	\$24.5
Northern California	\$29.0
San Francisco Bay Area	\$43.2
Sierra	\$56.5
Southern California	\$22.0
Overall	\$203.4

Source:
BBC Research & Consulting, 2010 based on
data from NPS, USFS, BLM, Corps and NWR.

Overall economic contribution from recreation at federally-managed lands. Total annual visitor and operating expenditures represent the direct economic effect from recreation at federally-managed facilities and areas in California. BBC incorporated these direct effects into the IMPLAN model to generate estimates of the secondary (indirect and induced) economic effects.³

³ Since the input-output analysis estimates the overall economic contribution that results from economic activity *in one or more sectors* BBC identified the IMPLAN industrial sectors that best represent the visitor expenditure spending categories and operating expenditures. For example, lodging expenditures are likely captured by IMPLAN Sector 411 Hotels and motels. The crosswalk between spending categories and IMPLAN sectors is provided in Appendix B.

IMPLAN also generated estimates of employment, labor income and value-added resulting from visitor and operating expenditures.

The remainder of this section presents the results of this analysis beginning with the statewide economic contribution. Results by region follow the statewide discussion.

On average, visitor and operating expenditures related to recreation on federally-managed lands contributed approximately \$7.1 billion in total annual sales to the California economy (including secondary effects). This translated to approximately 61,000 jobs and \$2.5 billion in labor income. Figure 2-5 provides a summary of the statewide results.

Figure 2-5.
Economic Contribution from Federally-managed Lands - Statewide Results

	Direct	Indirect	Induced	Total
Sales (million dollars)	\$3,504.3	\$1,641.3	\$1,913.5	\$7,059.1
Value Added (million dollars)	\$2,197.3	\$902.8	\$1,090.4	\$4,190.5
Labor Income (million dollars)	\$1,334.3	\$521.2	\$603.7	\$2,459.2
Employment	39,574	9,154	12,498	61,227

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of intermediate goods – generally equivalent to gross domestic product (GDP) when summed across all industries.

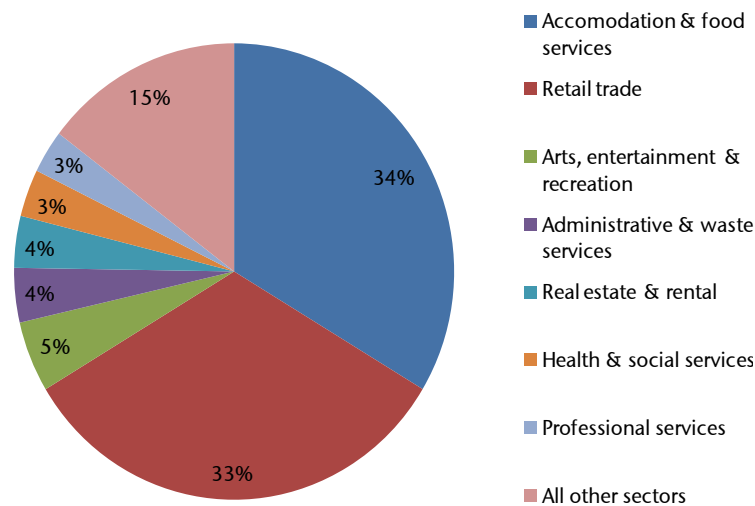
Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution that are not additive. Specifically, value added is a subset of sales and labor income is a subset of value added.

Source: BBC Research & Consulting using IMPLAN, 2010.

Figure 2-6 shows the breakdown of the total employment contribution from recreation at Federally-managed lands in California by industrial sector.

Figure 2-6.
Statewide Employment Contribution from Recreation at Federally-managed Lands by Industry

Source:
BBC Research & Consulting based on
IMPLAN, 2010.



Approximately two-thirds of the employment generated by visitation to and operation of federally-managed recreation areas were in either the accommodation and food services or retail trade sectors.

After these two sectors, the next largest employment share was about 5 percent for the arts, entertainment and recreation sector.

Figure 2-7 shows the estimated impact on total annual sales for each region.

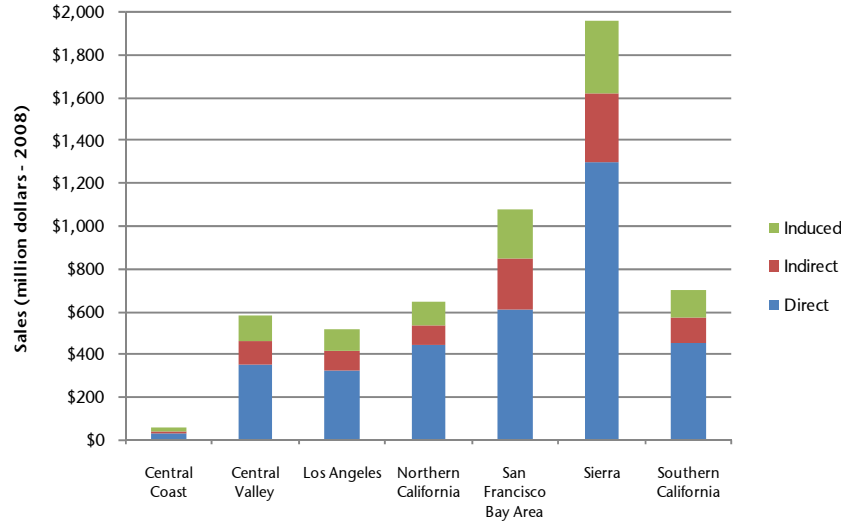
**Figure 2-7.
Economic Contribution
from Federally-managed
Lands – Sales by Region**

Note:

Because a portion of the secondary economic effects cannot be attributed to specific regions, these regional estimates represent a lower bound for each individual region.

Source:

BBC Research & Consulting using IMPLAN, 2010.



The sum of the estimated contribution from recreation at federally-managed lands to annual sales across the regions is smaller than the statewide total of \$7.1 billion. Visitation and operating expenditures in one region typically also lead to secondary economic impacts in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound estimate of the region’s economic activity related to recreation at federally-managed lands.

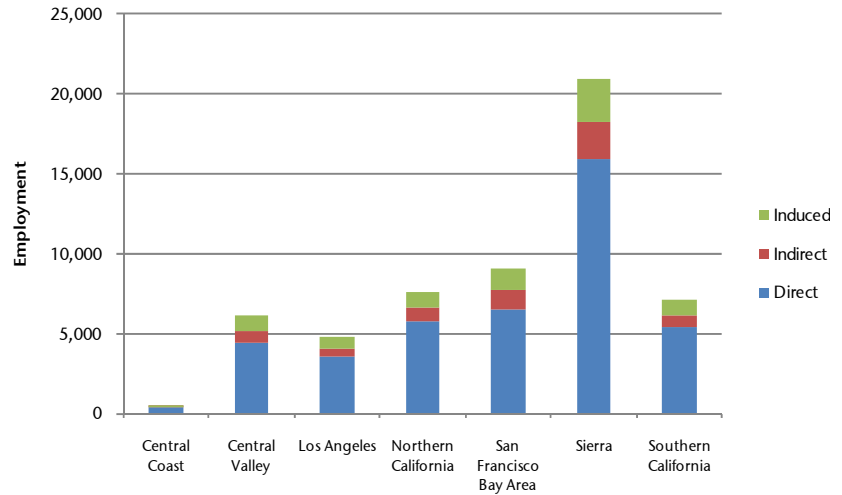
The Sierra region received at least \$1.9 billion in annual sales as a result of visitation to and operations of the federally-managed lands for recreation — by far the greatest among the seven regions and about 80 percent more than any other region. Federally-managed recreation areas contributed at least \$54 million in annual sales to the Central Coast region, which was the smallest regional effect.

Figure 2-8 shows the contribution to employment by region.

**Figure 2-8.
Economic Contribution from
Federally-managed Lands –
Employment by Region**

Note:
These estimates represent a lower bound.

Source:
BBC Research & Consulting using IMPLAN, 2010.



The employment estimates shown above, generally mirror the distribution of the total sales contribution (Figure 2-7) across the seven regions. A more detailed summary of the economic contribution in each region is provided in Appendix C.

Economic Contribution from Recreation at the State Parks System (SPS)

The following discussion provides a summary of the economic contribution of recreation at the SPS. This topic is described in greater detail in another report completed for this study, entitled *The Economic Contribution and Benefits of Recreation in the California State Park System*

SPS visitation. The SPS offers a wide variety of recreational opportunities throughout the state. As of the end of fiscal year 2008 (FY08), the SPS consisted of 279 park units. CSP’s annual Statistical Reports provide park unit-level visitation data for day trip visitors and for camping visitors.⁴ In the FY08 Statistical Report, visitation data was available for 224 of 279 park units.⁵ To reduce variation across years due to factors such as drought, wildfires or park construction activities, BBC averaged data from the FY06, FY07 and FY08 Statistical Reports. Figure 2-9 shows visitation by park type and region.

⁴ Day trip visitors are separated into free day use and paid day use. This distinction is generally not important for this analysis. The Statistical Report counts all visitors not camping at the SPS unit as a day trip visitor. Some “day trip visitors” stay overnight outside the park unit and possibly visit the same SPS units on multiple days. Each day entering the park unit would be counted as a day trip visit.

⁵ The Statistical Report identifies two primary characteristics for park units without visitation data: (1) small, remote and low use and/or (2) not managed by CSP.

Figure 2-9.
SPS Annual Visitation (Average of FY06-FY08)

	Number of Units	Day Trip Visits	Camper Nights	Total
Park Type				
State Beach (SB)	48	31,130,650	2,810,880	33,941,530
State Historical Park (SHP)	43	10,477,817	33,237	10,511,054
State Park (SP)	99	20,336,931	2,580,859	22,917,790
State Recreation Area (SRA)	26	5,498,019	509,734	6,007,753
State Vehicular Recreation Area (SVRA)	8	2,435,919	1,807,606	4,243,525
Total	224	69,879,336	7,742,316	77,621,652
Region				
Central Coast	35	11,266,861	2,037,270	13,304,131
Central Valley	42	9,581,642	648,297	10,229,939
Los Angeles	17	2,769,403	659,969	3,429,372
Northern California	50	4,508,028	741,856	5,249,883
San Francisco Bay Area	42	9,456,927	436,560	9,893,487
Sierra	18	3,581,041	284,819	3,865,860
Southern California	29	28,715,435	2,933,545	31,648,980
Total	224	69,879,336	7,742,316	77,621,652

Note: Nine units are located in two regions. Visitation for these units was allocated across the two regions based on the proportion of the area of the unit in each region — the number of units includes park units either fully or partially located in the region.

Source: BBC Research & Consulting, 2010 based on FY06, FY07 and FY08 Statistical Reports.

Average annual visitation to the SPS was about 77.6 million visitor days — about 10 percent being camping nights. Based on data from the California State Park Visitor Survey (SPVS), approximately 8 percent of SPS visitors came from outside the state.

State Beaches (SBs) had the highest number of visits (almost 45 percent) followed by State Parks (SPs). Visitation at SBs was about 1.5 times higher than SPs, even though there were twice as many SPs as SBs. SPS units in the Southern California region attracted over 40 percent of all visits — far more than any of the other six regions. While the Los Angeles region park units attracted the lowest share of visitors (4%), the region still received about 3.5 million visitor days.

SPS visitor expenditures. The study team derived estimates of total visitor expenditures using data from the SPVS and Statistical Reports. For this study, BBC estimated expenditure profiles for each of the 224 park units with visitation data using an econometric model developed from SPVS data. These profiles were estimated separately for day use and camping visitors and also disaggregated into expenditures inside or near the park (within 25 miles) and expenditures further away (beyond 25 miles).

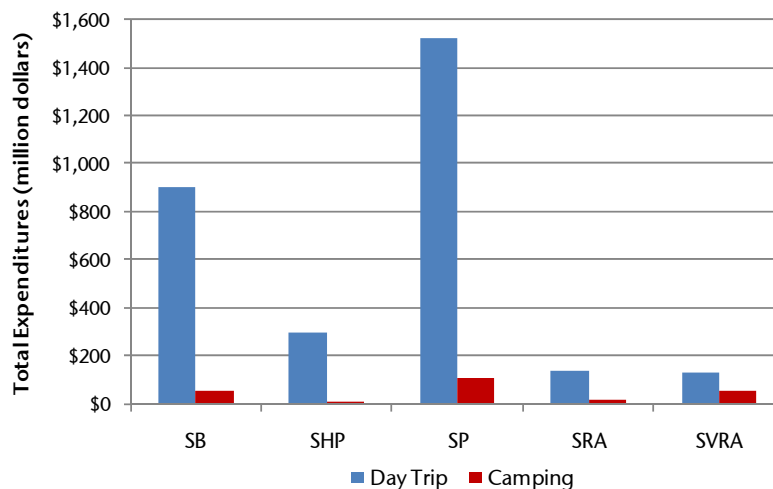
BBC combined park unit-specific expenditure profiles with each park unit's visitation data to estimate the total trip expenditures generated by visitors to the park unit. Using these estimates, BBC derived total visitor expenditures for the SPS as a whole by visitor type (i.e., day trip or camping), park type, region and spending category (e.g., expenditures on lodging). These estimates are representative of the average annual visitor expenditures during the three year period from FY06 through FY08 (referred to hereafter as the FY06-FY08 period).

The study team estimated average annual SPS visitor expenditures over the FY06-FY08 period to be approximately \$3.2 billion dollars — resulting in an average expenditure per visitor per day of about \$41.50. About 93 percent of total visitor expenditures were generated through day trips. The average per day expenditure by a day trip visitor was about \$42.75 compared to about \$29.50 for a camping visitor.⁶

Figure 2-10 shows total annual visitor expenditures by park type for day trip and camping visitors.

Figure 2-10.
Total Annual Visitor Expenditures by Park Type (2008 dollars)

Source:
 BBC Research & Consulting, 2010.



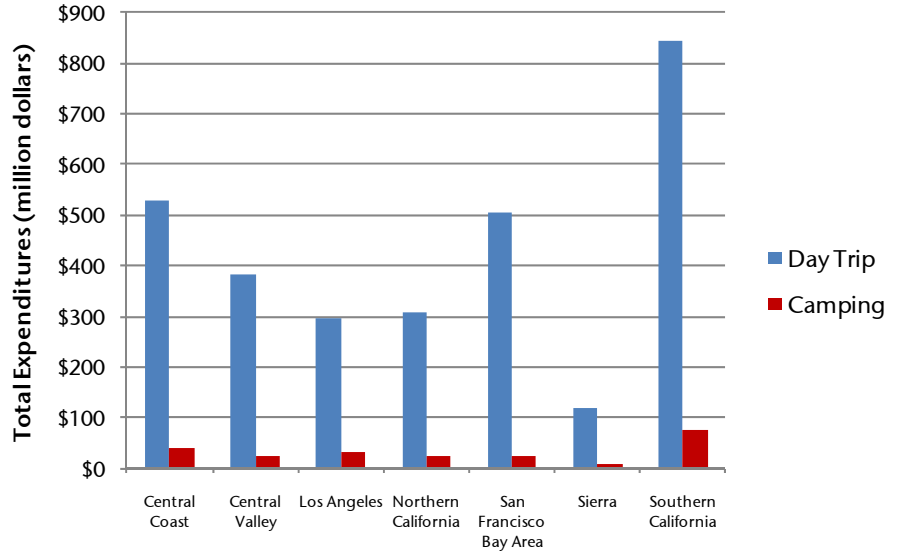
Although visitation to SPs accounts for only 30 percent of the total SPS visitation, just over 50 percent of the total visitor expenditures result from visits to SPs. Trips to SBs, State Historic Parks (SHPs), State Recreation Areas (SRAs) and State Vehicular Recreation Areas (SVRAs) account for about 30 percent, 9 percent, 5 percent and 6 percent of total visitor expenditures, respectively. Based on these estimates, the average visitor to a SP typically spent substantially more per day than visitors to other park types. Specifically, the average expenditure per day at SPs was slightly over \$71 compared to about \$26 at SRAs, \$28 at SBs and SHPs, and \$42 at SVRAs.

⁶ As discussed in footnote #3, some day trip visitors stay overnight during their trip. In fact, data from the SPVS indicates that many day trip visitors incur lodging expenses. Thus, the average per day expenditure estimate for day trip visitors captures the spending by some visitors on multi-day trips that include spending on lodging outside the park unit.

Figure 2-11 shows total annual visitor expenditures by region for day trip and camping visitors.

Figure 2-11.
Total Annual Visitor Expenditures by Region (2008 dollars)

Source:
 BBC Research & Consulting, 2010.

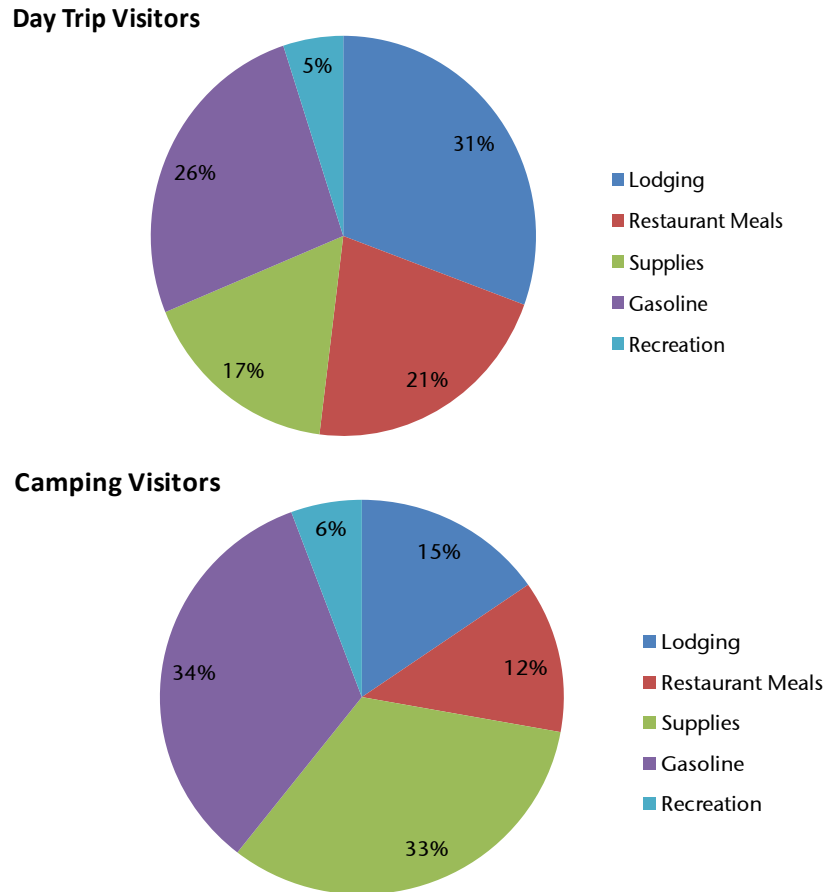


Approximately 30 percent of total annual visitor expenditures occur in the Southern California region. While this proportion is the highest among all the regions, it is below the region's share of total visitation (about 40 percent). In contrast, the Los Angeles region only attracts about 4 percent of SPS' visitation, but captures about 10 percent of total visitor expenditures. These results demonstrate that the distribution of visitor expenditures across the state do not depend only on levels of visitation. Other important factors include the park types within the region, the remoteness of the park units and the population of the region itself.

Figure 2-12 shows the distribution of total visitor expenditures by visitor type across the spending categories.

Figure 2-12.
Total Expenditures by
Spending Category

Source:
BBC Research & Consulting, 2010.



Day trip and camping visitors differ in the types of purchases they make during their trips. The lodging category accounts for about 30 percent of expenditures by day trip visitors (reflecting lodging expenditures outside the parks) compared to 15 percent for camping visitors. Supplies and gasoline categories each account for about one-third of the expenditures by camping visitors.

Operating expenditures. Over the FY06-FY08 period, CSP spent an average of about \$198 million per year for field operations of the SPS.⁷

SPS park units are administratively organized into 25 districts based on location. CSP tracks operating expenditures for these districts, but not for individual park units. Therefore, to estimate operating expenditures at the region and park type-level, BBC assumed that these expenditures were proportional to visitation levels. Figure 2-13 summarizes the total operating expenditures by park type and region.

Figure 2-13.
Summary of Annual
Operating Expenditures
(2008 dollars)

Source:
BBC Research & Consulting, 2010 based on
FY06, FY07 and FY08 Statistical Reports.

	Operating Expenditures
Park types	
State Beach (SB)	\$49,412,378
State Historical Park (SHP)	\$27,011,592
State Park (SP)	\$65,480,263
State Recreation Area (SRA)	\$29,582,218
State Vehicular Recreation Area (SVRA)	\$26,140,554
Total	\$197,627,005
Regions	
Central Coast	\$48,677,155
Central Valley	\$33,990,945
Los Angeles	\$16,101,935
Northern California	\$14,136,601
San Francisco Bay Area	\$21,565,620
Sierra	\$18,110,880
Southern California	\$45,043,869
Total	\$197,627,005

Overall economic contribution from the SPS. The total visitor expenditures and operating expenditures represent the direct economic effect from the SPS. Just as in the analysis of recreation on federally-managed lands, BBC used these measures of direct effects as inputs for the IMPLAN model to generate estimates of the secondary (indirect and induced) economic effects.⁸

This section presents the results of this analysis beginning with the statewide economic contribution. The results by region are then discussed.

⁷ See CSP's FY06, FY07 and FY08 Statistical Reports. Field operations include park unit staff, equipment, utilities and supplies. These costs do not include administration and headquarter expenditures.

⁸ See footnote 3 in this section.

Statewide results. On average, during the FY06-FY08 period, SPS visitor and operating expenditures contributed approximately \$6.8 billion in economic output to the California economy (including secondary effects). This translated to approximately 56,000 jobs and \$2.3 billion in labor income. Almost 90 percent of all these job impacts can be attributed to expenditures by day trip visitors to the SPS. Figure 2-14 provides a summary of the statewide results.

**Figure 2-14.
Economic Contribution from the SPS - Statewide Results**

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$2,988.9	\$229.4	\$197.6	\$3,416.0
Indirect	\$1,418.7	\$104.6	\$85.3	\$1,608.7
Induced	\$1,544.5	\$119.1	\$144.6	\$1,808.2
Total	\$5,952.2	\$453.2	\$427.6	\$6,833.0
Value Added (million dollars)				
Direct	\$1,861.1	\$146.9	\$131.2	\$2,139.1
Indirect	\$773.8	\$58.8	\$52.0	\$884.5
Induced	\$880.1	\$67.9	\$82.5	\$1,030.5
Total	\$3,515.0	\$273.5	\$265.6	\$4,054.1
Labor Income (million dollars)				
Direct	\$1,043.4	\$81.7	\$113.4	\$1,238.5
Indirect	\$454.2	\$33.8	\$27.0	\$515.0
Induced	\$487.3	\$37.6	\$45.6	\$570.5
Total	\$1,984.9	\$153.1	\$186.0	\$2,324.1
Employment				
Direct	31,140	2,374	1,541	35,055
Indirect	7,940	594	509	9,043
Induced	10,088	778	948	11,814
Total	49,168	3,746	2,997	55,912

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of intermediate goods — generally equivalent to gross domestic product (GDP) when summed across all industries.

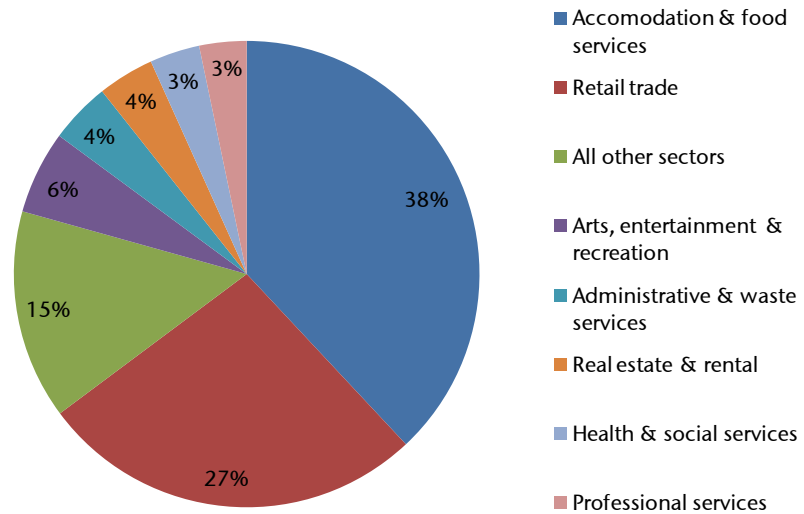
Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Source: IMPLAN, 2010.

Figure 2-15 shows the breakdown of the SPS employment contribution by industrial sector.

Figure 2-15.
Statewide SPS
Employment
Contribution by Industry

Source:
IMPLAN, 2010.



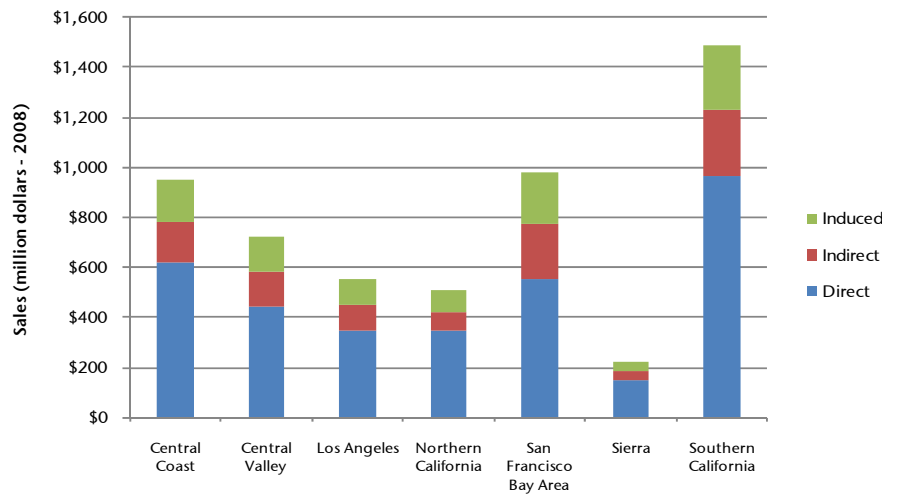
Approximately 38 percent of the employment generated by visitation to and operation of the SPS was in the accommodation and food services industry. The retail trade industry received about 27 percent of the jobs. The next largest employment share was about 6 percent for the arts, entertainment and recreation industry.

Results by region. This section discusses the economic contribution from the SPS within the seven California regions. Substantial economic contributions occurred in each of the California regions as a result of visitation to and operation of the SPS. Figure 2-16 shows the estimated contribution on total economic output for each region.

Figure 2-16.
Economic Contribution
from the SPS – Sales by
Region

Note:
Because a portion of the secondary economic effects cannot be attributed to specific regions, these regional estimates represent a lower bound for each individual region.

Source:
IMPLAN, 2010.



The summation of the estimated economic sales contribution across the regions is smaller than the statewide total of \$6.8 billion. Visitation and operating expenditures in one region lead to secondary economic contributions in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound.

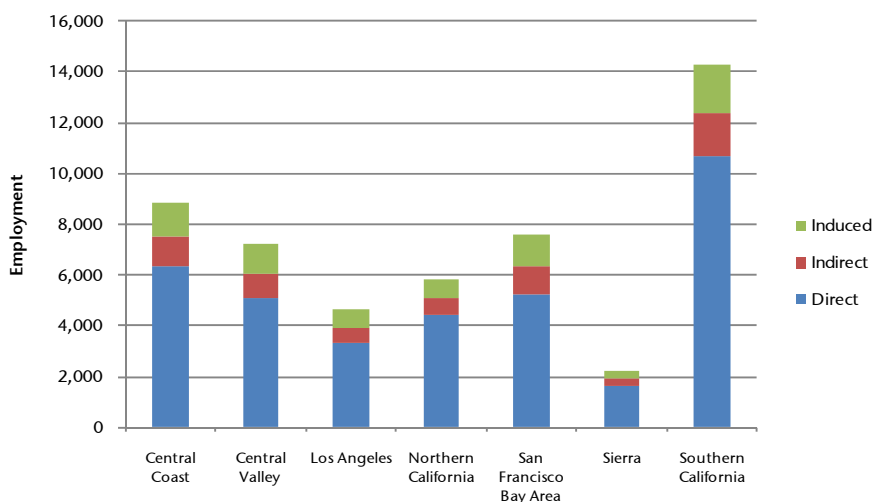
In 2008, the Southern California region received at least \$1.5 billion in economic sales as a result of visitation to and operations of the SPS — about 50 percent more than any other region. The SPS contributed at least \$225 million in economic sales to the Sierra region, which was the smallest regional effect from the SPS.

Figure 2-17 shows the SPS' contribution to employment by region.

Figure 2-17.
Economic Contribution from the SPS – Employment by Region

Note:
These estimates represent a lower bound.

Source:
IMPLAN, 2010.



As shown above, while each of the regions received economic contributions from the SPS, the absolute and relative magnitudes of the economic activity varied across regions. A more detailed summary of the economic contribution in each region, and detailed summary results for each park type, are provided in Appendix D and Appendix E, respectively.

Regional and Local Parks, Playgrounds and Public Sports Facilities

“Local parks”, broadly defined, present something of a paradox for an economic study of outdoor recreation. As shown in Section I of this report, data from the SPOA indicate that Californians participate in outdoor recreation in local parks far more frequently than in state or federally-managed facilities. The emerging literature related to local parks, much of it developed by the Trust for Public Lands, has also conceptually identified a wide array of economic benefits associated with local parks — including tourism spending, increases in nearby property values, health-related benefits and community and environmental-related benefits.⁹ Yet, because of generally open and free access, limited management resources and the sheer number of local parks, playgrounds and public sports facilities, there is very little data available concerning visitation, activities or expenditures at these types of facilities.

Local and regional parks encompass a wide range of facilities. There are an estimated 185 county and regional parks in California¹⁰, including extensively visited facilities such as the East Bay Regional Park District which receives as many as 14 million visits per year.¹¹ Other facilities in this broad

⁹ See, for example, The Trust for Public Land. *Measuring the Economic Value of a City Park System* 2009.

¹⁰ Estimate based on listing of California regional and county parks obtained from Wildernet.com.

¹¹ 1999 visitation reported in East Bay Regional Park District. *Quantifying Our Quality of Life: An Economic Analysis of the East Bay's Unique Environment* 2000.

category range from small neighborhood parks and playgrounds to major local park attractions such as Balboa Park in San Diego.

Local/regional park visitation. Based on the SPOA analysis summarized in Figure 1-3 in the previous section of this report, Californians spent approximately 1.4 billion visitor days recreating at local, regional, state and national parks during 2008. Yet the combined estimate of total visitation in 2008 at SPS facilities and federally managed lands (both adults and children) described earlier in this report was less than 170 million visitor days including out-of-state visitors. When out-of-state visitors are excluded, California residents spent about 140 million recreation days at SPS facilities and federally-managed lands. Comparison of these data points suggests that about 90 percent of Californians days in parks in 2008 (1.3 billion days in total) were spent at regional, county and local parks and facilities.¹²

Figure 2-18 provides a further analysis to derive a general estimate of annual visitation by California residents to local parks (broadly defined) in each region in 2008. This analysis calculates total annual visitation to all types of parks by residents of each region based on the SPOA data, then deducts estimated visits by residents of the region to the SPS and federally-managed facilities to derive estimated visitation by regional residents to local and regional parks in their region. Due to data limitations, this analysis does not account for interregional visitation to local and regional parks (e.g. residents of one region who visit local or regional parks in another region instead of their own region) or visitation to local and regional parks by out of state residents.

Figure 2-18.
General Estimate of Local and Regional Park Visitation by Region

Region	Average Days at All Park Types per Adult Resident	Total Days (millions)			Estimated Days at Local/Regional Parks
		All Park Types		Total	
		Adults	Children		
Central Coast	34	36.3	11.2	47.6	41.2
Central Valley	33	140.0	54.8	194.8	176.6
Los Angeles	39	308.1	107.4	415.5	378.7
Northern California	27	15.0	4.1	19.1	16.4
San Francisco Bay Area	47	256.4	74.5	330.9	294.6
Sierra	26	16.5	4.2	20.7	18.2
Southern California	39	297.2	107.4	404.6	366.8
Total	39	1,069.5	363.6	1,433.1	1,292.5

Source: BBC Research & Consulting, 2010 based on analysis of data from SPOA mail-back survey question 4, American Community Survey data on total population by region in 2008 and SPS and federal facility visitation data presented earlier in this report.

Visitor activities in local/regional parks. Question 15 from the SPOA telephone survey asked respondents what activities they participated in during their last visit to a park. Since approximately 90 percent of park visits involve local or regional facilities (see discussion above), the responses to this question likely provide a reasonable distribution of the activities that occur in these types of parks.

¹² The estimate of 1.3 billion days of local and regional park visitation may be a conservative (low) estimate. If we include recreation days at historical and cultural buildings, and natural and undeveloped areas, based on Figure 1-3; the derived estimate of regional and local park visitation could be as high as 1.9 billion total recreation days per year. We have opted to use the lower estimate of regional and local park visitation for purposes of this analysis.

Some respondents indicated they participated in multiple activities during their visit. The study team analyzed the distribution of activities among respondents reporting participation in only one or two activities (the majority of all respondents) to derive an estimated distribution of the primary activities that bring visitors to the parks. Figure 2-19 depicts the estimated distribution of primary activities of Californians in local/regional parks and the frequency of participation in all types of activities at those facilities (including participation by respondents involved in more than one activity during their visit). Using this approach, for example, the study team estimated that 29 percent of visitors to local or regional parks come to the park primarily to walk. However, irrespective of the primary purpose of their visit, almost half of the visitors do some walking while at the park.

Figure 2-19.
Estimated Distribution of Activities by Visitors to Local/Regional Parks

Activity	Primary	Total Participation
Walking	29.0%	49.0%
Playing*	11.9%	30.5%
Sports**	10.1%	18.6%
Sedentary***	9.5%	24.1%
Hiking	7.4%	16.8%
Dog Walking	5.0%	9.2%
Jogging/running	4.9%	12.5%
Picnicking	4.3%	24.0%
Bicycling	2.4%	8.0%
Fishing	2.2%	5.2%
Wildlife Viewing	2.0%	12.7%
Swimming	2.0%	8.5%
Active water sports****	1.3%	4.0%
Tennis	1.0%	2.2%
In-line Skating	0.2%	0.5%
Martial arts	0.1%	0.7%
Other*****	6.6%	9.7%
Total	100.0%	

Notes: *Includes Frisbee, playing catch, flying a kite, playing with children.
 **Includes team sports such as baseball, soccer, football and basketball.
 ***Includes sitting, reading, supervising children.
 ****Includes kayaking, rowing and canoeing.
 *****Other activities identified by respondent.

Source: BBC Research & Consulting, 2010 based on analysis of data from SPOA telephone survey question 15.

Visitor expenditures for local/regional park visits. Information regarding visitor expenditures for visits to local and regional park facilities is even more scarce than data on visitation or activities at those facilities. At many local parks, most visitors are nearby residents that either walk, bicycle or drive short distances to enjoy a brief interlude at the park. In these cases, there may be virtually no “trip” expenditures. However, as noted in Figure 2-19, many local and regional park visitors have a picnic while visiting the park, suggesting they incur at least some expenditures for food and beverages. At the other end of the spectrum, many of the regional parks and some of the more prominent local parks in California function more like state parks. Visitors may come from greater distances to recreate in these types of parks and are likely to participate in a wider range of activities.

To develop a general estimate of the typical visitor expenditures for prominent local parks and regional parks, the study team conducted a further analysis of some of the data collected during the SPVS. Among the 26 SPS units surveyed, six of the park units are not dissimilar to prominent local and regional parks. These facilities, listed below, are located in the midst of heavily urbanized areas and are predominantly visited by local residents. For this analysis, we also reduced the sample of visitors to those residing within 15 miles of each of the selected SPS facilities and also indicated their primary activity was among the common activity types for local/regional parks shown in Figure 2-19. We also only considered expenditures made by these visitors in the vicinity of the park facility (within 25 miles). This subsample of respondents, and their corresponding select expenditures, provides a reasonable proxy of visitors to local and regional parks.

The SPS facilities selected for this analysis included:

- Auburn State Recreation Area;
- Candlestick Point State Recreation Area;
- Chino Hills State Park;
- Millerton Lake State Recreation Area;
- Mount Tamalpais State Park; and
- Will Rogers State Historic Park.

About 40 percent of the subsample of survey respondents described above reported no expenditures during their visits to these SPS facilities. Local expenditures by those nearby residents that did spend money on their visit averaged approximately \$12 per day per visitor. These expenditures included purchases of food and beverages, supplies, recreation services and gasoline. This estimated daily expenditure amount per visitor is less than one-third of the overall average daily expenditure amount for all visitors to all SPS facilities (\$41.50) described earlier in this report.

While this daily visitor expenditure estimate is relatively low, the study team believes it is most applicable to visits to relatively prominent local and regional parks and to visits to other local recreation facilities for events (such as youth sports competitions and other special activities). In our judgment, based partly on the activity distribution shown in Figure 2-19 as well as other data from the SPOA describing travel times to respondents' most frequently visited parks and recreation areas, a best estimate of "trip expenditures" associated with local and regional park visitation should assume that about two-thirds of local/regional park visits involve no quantifiable expenditures, while the remaining one-third involve expenditures similar to those estimated from the SPVS subsample. On the basis of these assumptions, overall average expenditures per visit to regional and local parks are assumed to average \$4 per person (1/3 of visitors spend \$12, 2/3 of visitors spend \$0). This estimate can be compared to the expenditure estimate from the 2000 study, ***Quantifying Our Quality of Life: An Economic Analysis of the East Bay's Unique Environment***, which quantified visitor spending to the regional park system in the East Bay. That study estimated that non-durable (trip) expenditures of regional park visitors averaged \$4.85 per person per visit (\$6.06 in 2008 dollars). The lower figure for regional and local park visitors in our current study (\$4 per person per visit) is consistent with the assumption that spending per local park visit is less than spending per regional park visit.

Figure 2-20 provides a general estimate of visitor expenditures associated with regional and local park visitation for each region.

Figure 2-20.
General Estimate of Visitor Expenditures for Local/Regional Park Visits

Region	Days at Local/Regional Parks (millions)	Daily Expenditures for Visits with Expenditures	Proportion of Visits Involving Expenditures	Annual Visitor Expenditures (millions)
Central Coast	41.2	\$12.00	33%	\$163
Central Valley	176.6	\$12.00	33%	\$699
Los Angeles	378.7	\$12.00	33%	\$1,500
Northern California	16.4	\$12.00	33%	\$65
San Francisco Bay Area	294.6	\$12.00	33%	\$1,167
Sierra	18.2	\$12.00	33%	\$72
Southern California	<u>366.8</u>	\$12.00	33%	<u>\$1,452</u>
Total	1,292.5			\$5,118

Source: BBC Research & Consulting, 2010.

As should be clear from the preceding discussion, the visitor expenditures associated with local/regional park visits are best estimates based on very limited data and considerable professional judgment. However, there is no doubt that local and regional park visitation, together with even more localized recreation activity outside of parks (such as walking, running and bicycling in local neighborhoods), accounts for the majority of outdoor participation in California. As such, these activities also result in a large proportion of the demand for recreation equipment purchases. Such purchases are described and analyzed later this report. The large number of visits to local/regional parks also produces large benefits for the park users, also discussed in a subsequent section of this report.

Economic contribution of local/regional park visits. Based on the generalized estimate of approximately \$5 billion in statewide spending associated with local and regional park visits, the study team estimated the overall economic contribution from such visitation for California as a whole and for each of the state's regions. Figure 2-21 shows the estimated contribution to statewide sales and employment from local and regional park visitation. Visits to local and regional parks generated and estimated \$10 billion in total sales across California and supported an estimated 87,000 jobs. Purchases of recreational equipment used during park visits are not included in these estimates. A more detailed summary of the statewide and regional economic contribution estimates is provided in Appendix F.

Figure 2-21.
Estimated 2008 Economic Contribution from Visits to Local and Regional Parks in California

Region	Sales		Employment	
	Direct	Total	Direct	Total
Central Coast	\$163.4	\$248.5	1,756	2,403
Central Valley	\$699.3	\$1,134.2	8,162	11,463
Los Angeles	\$1,499.6	\$2,399.6	16,368	21,884
Northern California	\$64.7	\$93.9	786	1,044
San Francisco Bay Area	\$1,166.8	\$2,053.0	11,967	16,810
Sierra	\$72.3	\$108.2	834	1,105
Southern California	\$1,452.3	\$2,232.5	16,859	22,190
Statewide	\$5,118.3	\$10,119.5	56,186	86,890

Source: BBC Research & Consulting, 2010.

Note: *Statewide total employment contribution captures inter-regional effects, and, therefore, exceeds the sum of the individual region effects.

Figure 2-22 provides a graphical depiction of the estimated employment contribution from visits to local and regional parks for each of the state's regions.

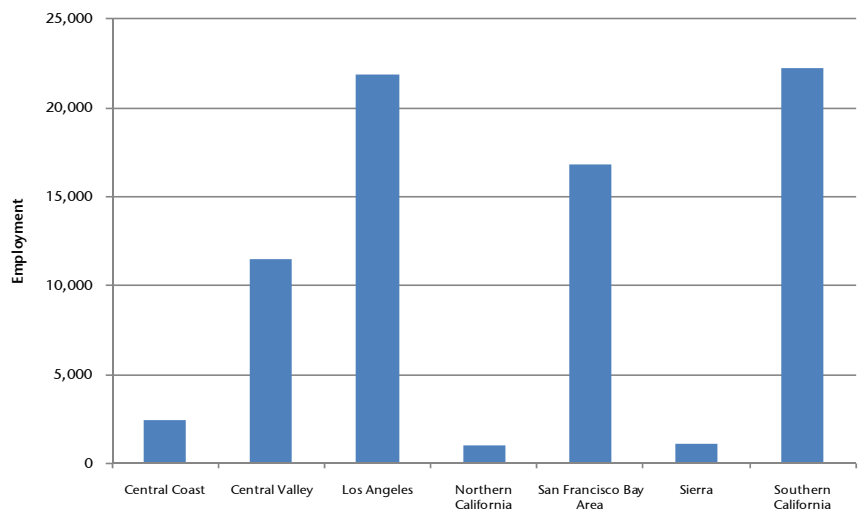
Figure 2-22.
Estimated 2008 Total Jobs by Region Resulting from Visitation to Local and Regional Parks in California

Note:

The summation of the estimated economic employment contribution across the regions is smaller than the statewide total of 87,000. Expenditures in one region lead to secondary economic effects in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound.

Source:

BBC Research & Consulting, 2010.



Additional Economic Contribution of Selected Activities

The preceding analyses of the economic contribution of outdoor recreation on federally-managed lands, at the SPS, and at regional and local parks do not fully capture all of the trip-related expenditures associated with outdoor recreation. In particular, there are three major categories of outdoor recreation activities that occur on public lands or in common spaces which are either only partly captured in the preceding analyses or largely excluded from those analyses. These three categories include fishing/hunting activity and boating activity outside of the specific destinations analyzed up to this point¹³ and golf played on publicly owned courses in California. The additional economic contribution from these activities is discussed in the following several pages.

Fishing and hunting. California provides a wide range of recreational hunting and fishing opportunities in terms of both location and activity-type (e.g., saltwater or freshwater fishing and different types of game hunting). Participants in these activities contribute to the California economy through trip and equipment expenditures. Many anglers also have boat-related expenditures such as marina slip rentals, repair and maintenance, gasoline, and insurance. Purchases of fishing (including boats) and hunting equipment are included in a separate section which describes overall annual recreational equipment expenditures.

Hunting and fishing activity and expenditures. The U.S. Fish & Wildlife Service conducts a national survey every five years called the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWR).¹⁴ The survey collects information on participation levels and expenditures (both trip and equipment¹⁵) for anglers, hunters and wildlife watchers. Based on the results from the most recent FHWR conducted in 2006, FWS estimated that approximately 1,730,000 anglers and 281,000 hunters (including both Californians and out-of-state visitors) spent a total of 19.4 million days fishing and 3.4 million days hunting in California.¹⁶

Other estimates of hunting participation in California have been developed by the California Department of Fish and Game (DFG) based on data collected through the Game Take Hunter Survey (GTHS). DFG estimated a total of approximately 4.7 million hunting days in 2006 and 5.9 million hunting days in 2007 — substantially higher estimates than the FHWR estimate. These estimates indicate that hunting participation in 2006 was well below 2007 and that the actual 2006 participation may have been higher than the FHWR estimate.

FWS estimates statewide fishing and hunting trip expenditures for various spending categories using the results from the 2006 FHWR. The following discussion describes the approach BBC developed to allocate these expenditures across the seven California regions and the other adjustments applied to the data.

¹³ For example, river boating is a common outdoor recreation activity as is saltwater boating from private marinas. Hunting and fishing take place on private lands across the state as well as public lands.

¹⁴ Data collection for the survey is carried out by the U.S. Census Bureau.

¹⁵ The FHWR also collects data on expenditures on land leasing and ownership and licenses, stamps, tags and permits. This analysis did not incorporate these expenditures because a large portion of land ownership and leasing expenditure may not be fully attributable to hunting or fishing.

¹⁶ U.S. Fish and Wildlife Service. 2007. 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation – California.

- **Estimated expenditures by region from hunting-related trips.** The DFG (based on data from the GTHS) estimates and reports visitation data at the county-level. Using these data, BBC estimated the distribution of hunting days by region. BBC identified spending categories that likely capture expenditures made near the place of recreation, such as food, lodging, transportation and fees. BBC allocated the statewide trip expenditures (from FWS based on the 2006 FHWR) for these spending categories using the derived distribution of hunting days across the regions. An additional spending category of expenditures on magazines, books, membership dues and contributions, more likely captures expenditures made near the hunter's place of residence. These expenditures were distributed to the regions using the distribution of population across regions.
- **Estimated expenditures by region from fishing-related trips.** Two spending categories — boating costs and magazines/books/membership dues/contributions — represent “point of residence” expenditures. Statewide expenditures for these categories were allocated to regions using the distribution of population across regions.

BBC developed a multi-step approach to allocated “place of recreation” trip expenditures into regions. FWS disaggregates fishing participation estimates into saltwater, freshwater (at ponds/lakes/reservoirs) and freshwater (at rivers/streams). These data indicated that saltwater fishing represents approximately 39 percent of fishing days, freshwater (at ponds/lakes/reservoirs) represent 36 percent, and freshwater (at rivers/streams) represents the remaining 25 percent. BBC divided statewide fishing-related expenditures across these three fishing types using these proportions.

The Recreational Fisheries Information Network's (RecFIN) California Recreational Fisheries Survey (CRFS) provides county-level participation estimates for marine (saltwater) fishing. BBC allocated the portion of place of recreation expenditures attributed to saltwater anglers to regions based on the 2008 participation distribution from the CRFS.

Using GIS software, BBC computed the total surface area of lakes and the total number of miles of rivers and streams in each region.¹⁷ BBC assumed that participation in the two types of freshwater fishing generally follows the distribution of these metrics. Point of recreation expenditures attributed to freshwater anglers were allocated to regions based on these distributions.

For each region and spending category, BBC summed the estimated expenditures attributed to the three fishing types to get total fishing-related trip expenditures.

¹⁷ Surface area of lakes was estimated using GIS data available from DFG (<http://gis.ca.gov/catalog/BrowseRecord.epl?id=31272>). Number of miles of rivers and streams was estimated using GIS data obtained from ESRI.

- Disaggregated and adjusted transportation expenditures.** FWS provided BBC with information on the statewide distribution of transportation expenditures (both fishing and hunting) across air, private and public transportation categories (based on data from the 2006 FHWR). Expenditures on air transportation accounted for approximately 20 percent of total transportation expenditures compared to approximately 75 percent and 5 percent for private and public transportation, respectively. To be consistent with other portions of this analysis, BBC reduced transportation expenditures to exclude expenditures on air transportation.
- Adjusted fishing and hunting trip expenditure estimates to exclude activity counted in other portions of this analysis.** An estimated 9.68 million person days of fishing and 1.77 million person days of hunting occur annually at facilities within the SPS or on federal lands in California.¹⁸ These trip expenditures were previously estimated and included in the analyses of the economic contribution from these types of facilities.

As noted previously, hunting participation in 2006 may have been below typical levels. Participation estimates on federal lands are based on visitation data primarily from 2007 and 2008. Combining hunting participation data from the FHWR, DFG and federal agencies, BBC derived adjusted regional estimates of the number of person days of hunting on federal lands in 2006. The adjusted statewide estimate equals approximately 1 million days. Based on these adjusted hunting participation estimates and the estimates of fishing participation, Figure 2-23 shows the estimated proportions of hunting and fishing participation, by region, that occurred at SPS facilities or on federal lands.

Figure 2-23.
Proportion of Fishing and Hunting Participation occurring at SPS Facilities or on Federal Lands

Source:
 BBC Research & Consulting, 2010.

	Fishing	Hunting
Central Coast	55%	23%
Central Valley	93%	6%
Los Angeles	73%	19%
Northern California	39%	59%
San Francisco Bay Area	20%	1%
Sierra	89%	70%
Southern California	31%	48%
Overall	50%	30%

BBC reduced the regional fishing and hunting trip expenditures by the applicable percentage from the preceding figure to eliminate double counting.

- Updated expenditure estimates for inflation.** The adjusted, year 2006-based estimates of trip expenditures were updated to 2008 dollars using the U.S. Bureau of Labor Statistics Consumer Price Index.

¹⁸ Estimated based on visitation to SPS facilities and federal lands described earlier in this report and the distribution of activities among visitors to these types of facilities. Note: hunting is prohibited at all SPS and NPS facilities.

Estimated 2008 hunting and fishing expenditures by region, excluding new equipment purchases. After making the adjustments to update the FHWR expenditure data and eliminating double-counting with other portions of this analysis, annual statewide expenditures were estimated at approximately \$625 million for fishing trips and \$163 million for hunting trips — both figures are reported in 2008 dollars. Figure 2-24 shows estimated expenditures by region and spending category.

Figure 2-24.
Annual Fishing and Hunting Trip Expenditures by Region in Thousands of 2008 Dollars
(Excluding Equipment Purchases and Trip Expenditures Counted Elsewhere
in this Study)

	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Total
Fishing								
Supplies	\$2,440.7	\$788.6	\$7,162.5	\$8,228.1	\$16,016.3	\$686.4	\$19,522.5	\$54,845.1
Recreation	\$6,167.9	\$1,948.1	\$4,018.6	\$43,457.0	\$29,860.9	\$3,377.2	\$40,747.7	\$129,577.5
Lodging	\$2,940.1	\$928.6	\$1,915.6	\$20,714.8	\$14,233.9	\$1,609.8	\$19,423.4	\$61,766.2
Food	\$7,646.0	\$2,415.0	\$4,981.6	\$53,871.3	\$37,016.9	\$4,186.6	\$50,512.6	\$160,630.0
Gasoline	\$5,640.3	\$1,781.5	\$3,674.9	\$39,739.9	\$27,306.7	\$3,088.4	\$37,262.3	\$118,493.8
Boating	\$3,881.4	\$1,276.4	\$18,380.8	\$1,834.8	\$30,739.2	\$276.2	\$35,309.5	\$91,698.3
Public Transportation	\$376.0	\$118.8	\$245.0	\$2,649.3	\$1,820.4	\$205.9	\$2,484.2	\$7,899.6
Fishing Total	\$29,092	\$9,257	\$40,379	\$170,495	\$156,994	\$13,430	\$205,262	\$624,911
Hunting								
Supplies	\$405.8	\$2,075.5	\$3,302.0	\$109.9	\$2,625.1	\$91.1	\$2,025.3	\$10,634.7
Recreation	\$1,408.2	\$12,864.8	\$729.7	\$3,415.1	\$3,017.6	\$1,002.3	\$1,569.1	\$24,006.8
Lodging	\$1,034.3	\$9,449.0	\$535.9	\$2,508.4	\$2,216.4	\$736.2	\$1,152.5	\$17,632.6
Food	\$2,837.7	\$25,924.1	\$1,470.3	\$6,881.9	\$6,080.8	\$2,019.7	\$3,162.0	\$48,376.5
Gasoline	\$3,432.2	\$31,355.8	\$1,778.4	\$8,323.8	\$7,354.8	\$2,442.9	\$3,824.5	\$58,512.4
Public Transportation	\$228.8	\$2,090.4	\$118.6	\$554.9	\$490.3	\$162.9	\$255.0	\$3,900.8
Hunting Total	\$9,347	\$83,760	\$7,935	\$21,794	\$21,785	\$6,455	\$11,988	\$163,064
Total	\$38,439	\$93,016	\$48,314	\$192,289	\$178,779	\$19,885	\$217,250	\$787,974

Note: Excludes purchases of hunting and fishing (including new boats) as well as expenditures on land leasing and ownership and licenses, stamps, taps and permits.

Excludes fishing and hunting trips to SPS and federally-managed facilities.

Source: BBC Research & Consulting, 2010.

Boating. Boating contributes to California's economy in several ways. Like the participants in other forms of recreation described in this study, boaters spend money during their boating trips. Boat upkeep — including items such as marina slip rentals, repair and maintenance, and insurance — also contributes to regional and state economies in California. Purchases of new boats and equipment are also a significant component of the economic contribution from boating. New boat and equipment purchases are included later in this analysis in the section describing annual recreational equipment expenditures.

Boating activity and expenditures. The last comprehensive study of boating in California was conducted by the California Department of Boating and Waterways in 2002. The *California Boating Facilities Needs Assessment* (CBFNA) found that there were more than 900,000 registered boats in California in 2000, approximately 98 percent of which are registered for pleasure or recreational use.¹⁹

¹⁹ *California Boating Facilities Needs Assessment (CBFNA)*. California Department of Boating and Waterways. October 15, 2002. Registered boats include motorboats, personal watercraft and sail boats, but generally exclude hand powered boats like kayaks and rafts.

More recent data from the National Marine Manufacturers Association indicate the number of boats in California declined somewhat between 2000 and 2008, but that there were still about 859,000 boats registered in the state in 2008.²⁰

The CBFNA provides extensive data useful for this study. In addition to quantifying boat ownership, the CBFNA also estimated the average annual boat ownership costs, the number of boating trips and the average expenditures per trip for California as a whole and for each of ten regions in the state. To incorporate the CBFNA data into this study, we undertook five steps to update and adjust the data from the 2002 study:

- **Step 1. Estimated year 2000 boating trip and ownership expenditures for each of the regions used in this study based on the CBFNA data.** The CBFNA analysis uses a different regional breakdown than this study. In this initial step, the study team used the CBFNA data to calculate average annual boating trip expenditures and average boat ownership costs per resident for each county in the CBFNA regions. We then used these per capita expenditure estimates to develop total trip expenditures and boat ownership expenditures for each California county and combined the counties into the regional definitions used in our study.
- **Step 2. Adjusted trip expenditures downward to match SPOA boating participation estimates for 2008.** The CBFNA data indicate a total of about 41.1 million boating days in year 2000 (one boat in use for one day). Coupled with the CBFNA estimate that the average boat had 3.7 occupants²¹, this level of activity suggests about 152 million person days spent boating in year 2000. However, the 2008 SPOA which provides fundamental data for much of this study, indicates the average adult Californian spends 2.2 days boating each year. Multiplied by the total population of California, the SPOA participation estimate corresponds to about 80.9 million boating days in 2008. There are at least two possible explanations for the difference in these boating participation estimates. As noted previously, the number of registered boats in California declined between 2000 and 2008. Further, the CBFNA notes that “Interviewers reported that they sensed a tendency of boaters [in the survey] to exaggerate both their number of trips and the typical number of days per trip.”²²
- **Step 3. Updated expenditure estimates for inflation.** The adjusted, year 2000-based estimates of trip and ownership expenditures were updated to 2008 dollars using the U.S. Bureau of Labor Statistics Consumer Price Index.
- **Step 4. Adjusted boating trip expenditure estimates to exclude boating activity counted in other portions of this analysis.** An estimated 6.7 million person days of boating occur annually at facilities within the SPS or on federal lands in California.²³ These trip expenditures were previously included in the analyses of the economic

²⁰ **2009 Recreational Boating Statistical Abstract.** National Marine Manufacturers Association. 2010.

²¹ CBFNA, Volume 5, page 2-5.

²² CBFNA, Volume 1 page 2-12.

²³ Estimated based on visitation to SPS facilities and federal lands described earlier in this report and the distribution of activities among visitors to these types of facilities.

contribution from these types of facilities. In addition, a portion of the fishing trips (and corresponding expenditures) that occur in areas other than state or federally-managed lands — but which were previously incorporated in this analysis based on data from the 2006 FHWR — also involve boating. The correlation between fishing and boating is not known with any precision — analysis of the SPVS data suggests the proportion of fishing trips involving boating may be about 30 percent, while the CBFNA states that 60 percent of fishing trips involve boating. For this analysis, we assumed 50 percent of fishing trips outside of recreation areas managed by the CSP or the federal government involved boating. In aggregate, we estimate approximately 12.4 million (15 percent) of the 80.9 million boating person days have already been accounted for in other portions of this analysis. Consequently, the adjusted boating trip expenditures were reduced by 15 percent to eliminate double counting.

- Step 5. Allocated the adjusted boating trip and boat ownership expenditures to specific sectors and removed equipment purchases and property taxes from boat ownership expenditures.** The CBFNA also provided detailed breakdowns of the components of boat trip and boat ownership expenditures. These breakdowns, shown in Figure 2-25, were used to estimate total expenditures by sector for each region for boating trips and boat ownership. As mentioned previously, equipment purchases were excluded from this stage of the analysis, but are included later along with other purchases of recreation and sporting goods equipment. Property taxes on boats were also removed from this analysis. While government receipts from boat taxes may ultimately be used for boating-related government spending, the initial tax receipts do not reflect a direct economic contribution.

Figure 2-25.
Distribution of Boating Trip and Boat Ownership Expenditures by Sector

Boating Trips		Boat Ownership	
Grocery & Convenience	20%	<i>Equipment Purchases</i>	31%
Restaurants	6%	Repairs & Maintenance	25%
Hotels & Motels	6%	Insurance	11%
Campgrounds	4%	<i>Property Tax on Boat</i>	4%
Gift, book & other retail	2%	Marina Slip	19%
Drug stores	1%	Dry Storage	4%
Boating equipment stores	9%	Other Marina Fees	1%
Gas stations, boat fuel	19%	Club and Association Fees	3%
Gas stations, vehicle fuel	16%	Other Costs	3%
Marinas*	17%		
Total	100%	Total	100%

Note: *Includes transient berthing, parking, launching fees, boat fuel purchased at marinas and all other costs incurred at marinas.

Source: BBC Research & Consulting, 2010 based on CBFNA, Volume 1, page 2-19.

Estimated 2008 boating expenditures by region, excluding new equipment purchases. After making the adjustments to update the CBFNA data, adjust the data to match 2008 boating participation estimates from the SPOA and eliminate double-counting with other portions of this analysis, annual statewide expenditures on boating trips were estimated at approximately \$3.1 billion in 2008. This figure includes estimated annual expenditures of more than \$500 million for boating trips in four of the seven California regions including Southern California, Los Angeles, San Francisco Bay Area and the Central Valley.

Annual boat ownership expenditures, excluding purchases of new boats and equipment and property taxes, were estimated at about \$1.1 billion. The regional distribution of boat ownership expenditures is similar to the distribution of expenditures for boating trips. Figure 2-26 summarizes annual boating trip expenditures (excluding expenditures counted elsewhere in this study) and annual boat ownership expenditures by region.

Figure 2-26.
Annual Boating Trip and Boat Ownership Expenditures in 2008 by Region
(Excluding Purchases of New Boats and Property Taxes and Trip Expenditures Counted Elsewhere in this Study)

Region	Annual Expenditures (in millions)	
	Boating Trips*	Boat Ownership**
Central Coast	\$111.1	\$39.2
Central Valley	\$616.8	\$184.6
Los Angeles	\$769.0	\$240.1
Northern California	\$104.3	\$33.0
San Francisco Bay Area	\$618.8	\$264.6
Sierra	\$100.6	\$29.7
Southern California	<u>\$779.3</u>	<u>\$217.5</u>
Total	\$3,099.8	\$1,008.8

Note: *Excludes boating trips to SPS and federally-managed facilities and boating trips captured in other fishing-related expenditures.
 **Excludes purchases of new boats and equipment.

Source: BBC Research & Consulting, 2010.

The estimated contribution of boating expenditures to the economy of California and its regions is discussed along with the other two activity-based analyses, later in this section.

Golf at publicly-owned courses. Recreational golf is a major industry in California. Across the state, there are an estimated 900 to 1,000 golf courses. The PGA of America estimated there were more than 40 million rounds of golf played in California in 2005. A recent economic impact study focused on golf has estimated the sport's direct impact²⁴ in California at approximately \$6.9 billion in 2006.²⁵

In keeping with this study's narrower focus on participatory recreation on public lands and in common spaces, the study team has estimated the portion of the economic contribution of golf that results from municipal and other public courses. There are about 196 public courses in California,

²⁴ This estimate includes facility operations, construction of new courses and facilities, golf-related supplies including exports and major golf tournaments and associations.

²⁵ SRI International. *The California Golf Economy Report*. Prepared for Golf 20/20, July 2008.

representing about 21 percent of all golf courses in the state. The average annual revenues per public facility — excluding equipment sales which are counted elsewhere in this study — are almost \$2 million.²⁶ Based upon these data, we estimate direct annual expenditures in California associated with playing golf on public courses at about \$392 million per year. This estimate includes greens fees, cart rentals and food and beverages purchased at public golf courses.

To derive the estimated regional distribution of these expenditures, the study team analyzed data from the 2007 economic census regarding the geographic distribution of golf courses across the state. This analysis assumes that the regional distribution of public (municipal) golf courses is the same as the distribution of private courses (clubs, resorts and daily fee private courses) as the census figures do not include publicly owned courses. Figure 2-27 depicts the estimated annual direct expenditures associated with playing golf on public courses by region of the state. As noted earlier, these figures do not include expenditures for golf equipment and supplies, which are included later in this report.

Destination-based golf travel is also significant in California. However, in the absence of data on the proportion of golf-based trips to municipal courses — and presuming that resort courses and daily fee courses account for most golf-based trips — the study team has excluded golf-based destination travel from our economic contribution estimates.

Figure 2-27.
Estimated 2008 Direct Expenditures to Play Golf at Publicly-owned Courses in California

Region	Annual Expenditures (Millions of 2008 dollars)		
	Total	Fees/Rentals	Food/Beverage
Central Coast	\$28.9	\$21.6	\$7.2
Central Valley	\$57.7	\$43.3	\$14.4
Los Angeles	\$81.7	\$61.3	\$20.4
Northern California	\$8.5	\$6.4	\$2.1
San Francisco Bay Area	\$69.5	\$52.1	\$17.4
Sierra	\$20.3	\$15.2	\$5.1
Southern California	\$125.0	\$93.8	\$31.3
Total	\$391.6	\$293.7	\$97.9

Source: BBC Research & Consulting, 2010.

Additional economic contribution from selected major recreation activities. The estimated annual expenditures for hunting and fishing, boating, and recreational golf on public courses were input into the IMPLAN input-output regional economic models developed for this study. Net of the proportions of hunting and fishing and boating activities that occur on state and federally managed lands (accounted for previously in the location-based analyses of economic contribution), these three categories of activities generate an estimated \$10.7 billion in annual economic output in California and support over 85,000 jobs across the state. Statewide economic contribution estimates are presented on the following page, in Figure 2-28.

²⁶ *Ibid*

Boating accounts for the majority of this economic contribution, though it is important to recall that only the proportion of golf occurring on publicly owned courses (about 21 percent of all golfing activity in California) was included in this analysis. Each of these activities also leads to substantial expenditures on equipment, which are not included in Figure 2-28 but are analyzed later in this report.

Figure 2-28.
Estimated 2008 Economic Contribution from Hunting and Fishing; Boating; and Golf on Publicly Owned Courses in California*

	Hunting & Fishing	Boating	Golf	Total
Sales (million dollars)				
Direct	\$788.0	\$4,101.8	\$391.6	\$5,281.4
Indirect	\$414.6	\$2,073.7	\$256.9	\$2,745.3
Induced	\$408.0	\$2,097.8	\$204.2	\$2,710.0
Total	\$1,610.6	\$8,273.3	\$852.7	\$10,736.6
Value Added (million dollars)				
Direct	\$450.4	\$2,416.0	\$179.4	\$3,045.8
Indirect	\$225.7	\$1,171.8	\$140.6	\$1,538.2
Induced	\$232.5	\$1,195.5	\$116.4	\$1,544.3
Total	\$908.6	\$4,783.3	\$436.3	\$6,128.2
Labor Income (million dollars)				
Direct	\$264.3	\$1,348.7	\$116.0	\$1,729.0
Indirect	\$131.3	\$685.5	\$81.9	\$898.8
Induced	\$128.7	\$661.9	\$64.4	\$855.0
Total	\$524.3	\$2,696.1	\$262.4	\$3,482.8
Employment				
Direct	8,113	35,708	4,095	47,916
Indirect	2,324	12,183	1,490	15,996
Induced	2,665	13,702	1,333	17,700
Total	13,101	61,593	6,918	81,612

Note: *Excludes hunting and fishing and boating activity already captured in the analysis of recreation occurring on federally-owned lands and the SPS. All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of intermediate goods – generally equivalent to gross domestic product (GDP) when summed across all industries. Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Source: BBC Research & Consulting, 2010.

Estimated economic contribution by region from selected major recreation activities. Figure 2-29 illustrates the estimated total employment effects by region resulting from expenditures by participants in hunting and fishing — excluding employment effects already counted in the analysis of recreation at federally-managed lands and SPS facilities. The employment contribution shown in this figure also excludes jobs supported by purchases of equipment and supplies, which are described later in this report.

Figure 2-29.
Estimated 2008 Total Jobs by Region Resulting from Hunting and Fishing Activity in California *

Note:

Excludes hunting and fishing included in previous portions of the analysis.
 The summation of the estimated economic employment contribution across the regions is smaller than the statewide total of approximately 13,100. Expenditures in one region lead to secondary economic effects in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound.

Source:
 BBC Research & Consulting, 2010.

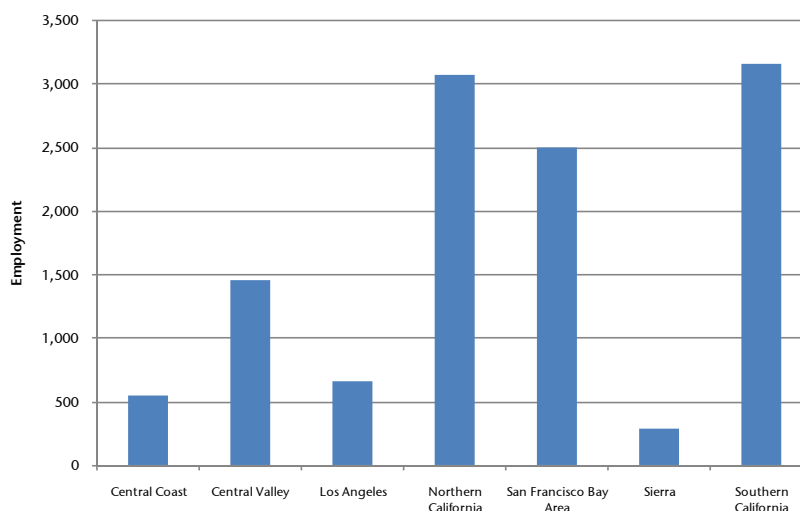


Figure 2-30 provides a similar regional breakdown of the total jobs supported by boating in each California region — again excluding boating activity previously captured in the analysis of activities at specific locations and excluding equipment expenditures.

Figure 2-30.
Estimated 2008 Total Jobs by Region Resulting from Boating Activity in California *

Note:

*Excludes boating included in the hunting and fishing analysis and in previous portions of the analysis focused on specific recreation locations.
 The summation of the estimated economic employment contribution across the regions is smaller than the statewide total of approximately 61,500. Expenditures in one region lead to secondary economic effects in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound.

Source:
 BBC Research & Consulting, 2010.

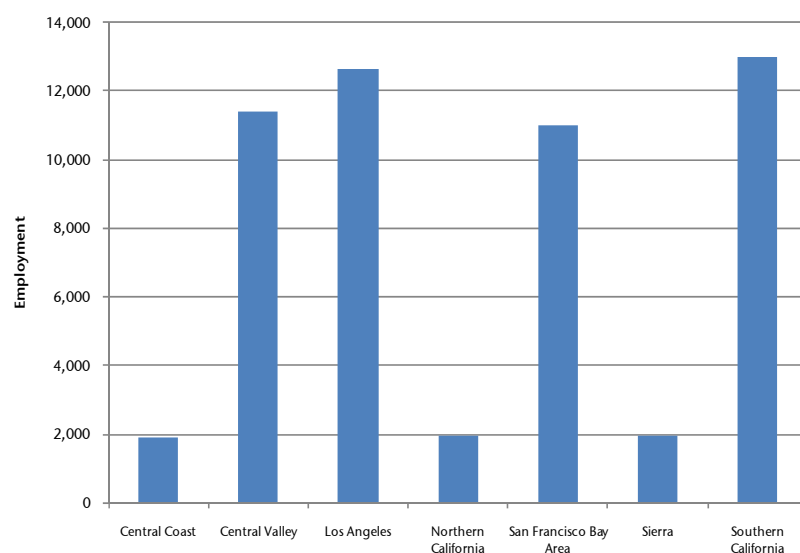


Figure 2-31 provides a regional breakdown of the total jobs supported by golf (on publicly owned courses only) in each California region. Jobs related to golf equipment expenditures are discussed later in this report.

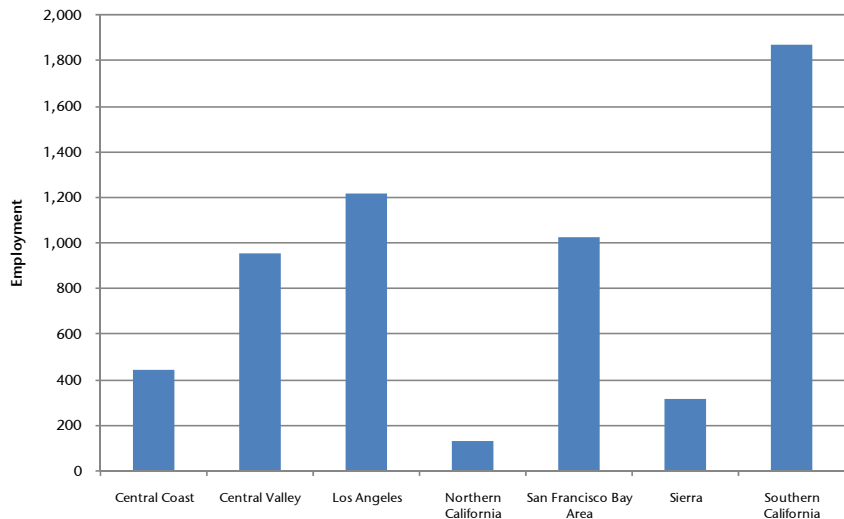
Figure 2-31.
Estimated 2008 Total Jobs
by Region Resulting from
Golfing Activity on
Publicly-owned Courses in
California

Note:

The summation of the estimated economic employment contribution across the regions is smaller than the statewide total of approximately 7,000. Expenditures in one region lead to secondary economic effects in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound.

Source:

BBC Research & Consulting, 2010.



More detailed summaries of the economic contribution estimated for each region is provided in Appendix G.

Expenditures for Equipment for Outdoor Recreation

The preceding analyses of outdoor recreation at particular locations (federal lands, the State Park System and local/regional parks) and involving specific activities has focused primarily on trip-related expenditures and facility operating costs. Purchases of sporting goods equipment is another important component of the economic contribution from outdoor recreation. To evaluate the economic contribution from equipment purchases, the study team obtained data regarding the purchases of specific types of sporting goods in year 2008 from the National Sporting Goods Association (NSGA).

NSGA data. Based on the definition of outdoor recreation used for this study, we reviewed sporting goods expenditures by category and included expenditures primarily associated with outdoor recreation on public lands and in common spaces. Certain categories of expenditures were adjusted to fit this definition, as follows:

- Expenditures for basketball equipment were reduced by 50 percent to recognize that a substantial proportion of basketball is played indoors;
- Expenditures for golf equipment were reduced to 21 percent of the statewide total, approximately reflecting the proportion of golf rounds that occur on publicly-owned courses;
- Expenditures for basketball shoes, hiking shoes and jogging/running shoes were reduced to 50 percent of their totals to reflect both indoor use and use of these types of shoes for multiple purposes apart from outdoor recreation. Other types of footwear — such as baseball and soccer shoes — that are clearly dedicated to outdoor recreation purposes were fully counted.

- Optical expenditures for binoculars were included in this analysis. Expenditures for sunglasses were not.

Californians also purchase millions of dollars worth of clothing for use in outdoor recreation. However, because such clothing is often worn for other purposes as well, the study team did not include clothing purchases in the outdoor recreation equipment analysis to maintain a conservative approach in estimating economic contribution.

Excluding boating-related equipment, Californians spent an estimated \$2.4 billion on equipment and supplies for outdoor recreation in 2008. Estimated statewide outdoor equipment purchases were allocated to the seven regions used in this study based on the relative size of the sporting goods retail sector in each region.²⁷

Boats and boating equipment. The NSGA data do not include expenditures for boats, trailers and other boating equipment. To include the significant expenditures associated with boating equipment, the study team incorporated 2008 data from the National Marine Manufacturers Association. Californians spent an estimated \$1.1 billion on new and used boats, trailers and other boating equipment. Boating equipment expenditures were allocated to regions based on the distribution of boat ownership expenditures from the 2002 CBFNA discussed earlier in this report.

Figure 2-32 summarizes the estimated 2008 expenditures by region for outdoor recreation equipment. After boating, the largest categories of expenditures for outdoor recreation equipment were for bicycling, hunting, camping, snow sports and fishing. Even though the study counted only 21 percent of expenditures for golf equipment, such purchases are also among the largest expenditures for outdoor recreation activities. Almost 80 percent of outdoor equipment expenditures in California occur in the three most populous of the state's seven regions: the San Francisco Bay Area, Los Angeles and the Southern California regions.

²⁷ Based on baseline study area data from the 2008 IMPLAN regional economic models used in this study.

Figure 2-32.
2008 Outdoor Equipment Expenditures by Type and Region (in millions of dollars)

Category	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Total
Archery	\$1.4	\$3.9	\$10.0	\$0.5	\$9.8	\$0.8	\$9.2	\$35.5
Baseball/Softball	\$2.3	\$6.7	\$17.0	\$0.8	\$16.5	\$1.3	\$15.6	\$60.2
Basketball	\$0.7	\$1.9	\$4.9	\$0.2	\$4.8	\$0.4	\$4.5	\$17.5
Bicycles	\$19.8	\$56.8	\$144.2	\$6.8	\$140.3	\$10.8	\$132.5	\$511.2
Camping	\$10.6	\$30.3	\$76.9	\$3.6	\$74.8	\$5.8	\$70.6	\$272.6
Fishing	\$6.9	\$19.7	\$50.1	\$2.4	\$48.7	\$3.8	\$46.0	\$177.5
Football	\$0.4	\$1.1	\$2.8	\$0.1	\$2.8	\$0.2	\$2.6	\$10.1
Golf (21% of total)	\$4.5	\$13.0	\$33.0	\$1.6	\$32.1	\$2.5	\$30.3	\$116.9
Helmets	\$1.5	\$4.3	\$10.8	\$0.5	\$10.5	\$0.8	\$9.9	\$38.4
Hunting	\$13.4	\$38.2	\$97.1	\$4.6	\$94.5	\$7.3	\$89.2	\$344.4
Lacrosse	\$0.1	\$0.2	\$0.5	\$0.0	\$0.5	\$0.0	\$0.5	\$1.9
Optics	\$0.9	\$2.5	\$6.4	\$0.3	\$6.2	\$0.5	\$5.9	\$22.7
Soccer	\$0.5	\$1.5	\$3.9	\$0.2	\$3.8	\$0.3	\$3.6	\$13.7
Snow Sports	\$7.3	\$20.9	\$53.2	\$2.5	\$51.8	\$4.0	\$48.9	\$188.6
Tennis	\$2.2	\$6.3	\$15.9	\$0.8	\$15.5	\$1.2	\$14.6	\$56.4
Volleyball and Badminton	\$0.3	\$0.9	\$2.3	\$0.1	\$2.2	\$0.2	\$2.1	\$8.1
Water Sports	\$0.7	\$1.9	\$4.7	\$0.2	\$4.6	\$0.4	\$4.4	\$16.8
Wheel Sports	\$1.7	\$4.8	\$12.2	\$0.6	\$11.8	\$0.9	\$11.2	\$43.1
Skin Diving and Scuba Gear	\$1.7	\$4.9	\$12.5	\$0.6	\$12.2	\$0.9	\$11.5	\$44.3
Shoes	\$15.2	\$43.4	\$110.4	\$5.2	\$107.4	\$8.3	\$101.4	\$391.3
Boating	\$44.2	\$208.2	\$270.8	\$37.3	\$298.5	\$33.5	\$245.3	\$1,137.8
Total Equipment Expenditures	\$136.3	\$471.5	\$939.6	\$68.9	\$949.3	\$83.7	\$859.8	\$3,509.1

Note: See text regarding adjustments to data.

Source: BBC Research & Consulting, 2010 based on NSGA and NMMA data for 2008.

The estimated annual equipment expenditures for outdoor recreation on public lands and in common spaces were input into the IMPLAN input-output regional economic models developed for this study. Relative to the trip-related expenditures described elsewhere in this analysis, which include a substantial proportion of service purchases as well as retail spending, there is a larger amount of “leakage” associated with retail purchases of boats and sporting goods. To a large extent, the products being purchased are manufactured in other states and foreign countries across the globe. For this reason, the “multipliers” associated with retail purchases of boats and sporting goods are comparatively low relative to the multipliers associated with trip expenditures.

To account for this leakage, the study team included only the retail margin in estimating the indirect and induced economic effects associated with purchases of outdoor recreation equipment — and in estimating the total employment, value-added and labor income associated with such purchases. Based on data for the boat dealer and sporting goods segments of the retail industry in California from the 2007 Economic Census, as well as the IMPLAN model data files used in this study, we estimated the average retail margin for these segments in 2008 at 38 percent.

Purchases of recreation-related equipment generated an estimated \$4.9 billion in total sales in California and supported about 27,700 jobs across the state in 2008. Total sales resulting from purchases of outdoor recreation equipment, including multiplier effects, ranged from about \$82 million in the Northern California region to more than \$1.2 billion in the San Francisco Bay Area region. Total employment effects were similarly distributed across the state’s regions, with outdoor equipment purchases supporting a total of about 600 jobs in the state’s two least populous regions

(Northern California and the Sierra) and more than 6,000 jobs in each of the state's three most populous regions (San Francisco Bay Area, Los Angeles and Southern California).

Estimated 2008 statewide and regional economic contributions in terms of sales and employment from outdoor equipment purchases are presented below in Figure 2-33 (a more detailed summary of is provided in Appendix H).

Figure 2-33.
Estimated 2008 Economic Contribution Outdoor Recreation Equipment Purchases in California *

Region	Sales		Employment	
	Direct	Total	Direct	Total
Central Coast	\$136.3	\$166.7	841	1,075
Central Valley	\$471.5	\$595.2	2,951	3,910
Los Angeles	\$939.6	\$1,177.2	5,068	6,551
Northern California	\$68.9	\$82.5	466	588
San Francisco Bay Area	\$949.3	\$1,252.4	5,335	7,013
Sierra	\$83.7	\$100.9	489	620
Southern California	\$859.8	\$1,055.7	5,046	6,403
Statewide	\$3,509.1	\$4,872.2	19,181	27,693

Note: *Statewide total employment contribution captures inter-regional effects, and, therefore, exceeds the sum of the individual region effects.

Source: BBC Research & Consulting, 2010.

Figure 2-34 provides a graphical depiction of the total jobs supported by purchases of boats and outdoor equipment in each region.

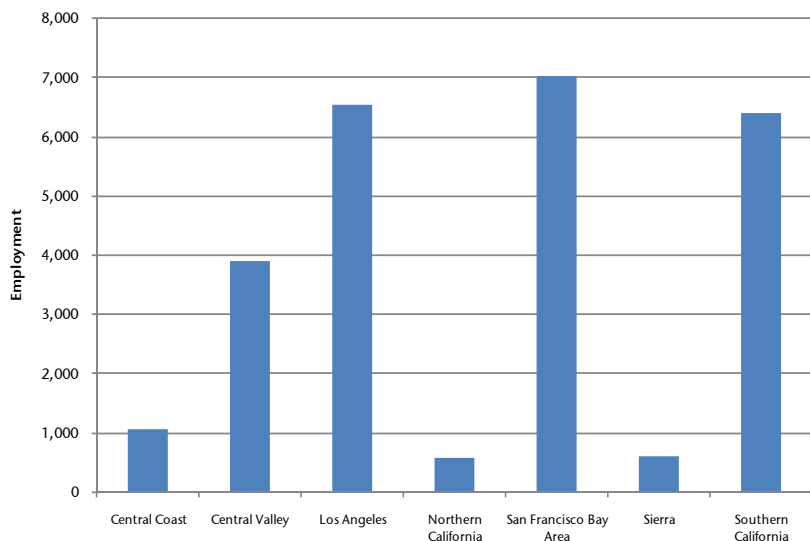
Figure 2-34.
Estimated 2008 Total Jobs by Region Resulting from Purchases of Boats and Other Outdoor Equipment in California

Note:

The summation of the estimated economic employment contribution across the regions is smaller than the statewide total of approximately 27,700. Expenditures in one region lead to secondary economic effects in other regions. These secondary effects were captured in the statewide analysis, but not in the estimated region-level economic contributions. Therefore, the economic contribution estimate for each region represents a lower bound.

Source:

BBC Research & Consulting, 2010.



Total Annual Economic Contribution of Outdoor Recreation in California

Recreation on federal lands, the SPS, at regional and local parks, and elsewhere in California contributes substantially to the economy of the state and its regions. In the concluding portions of this section, we combine the results of the preceding analyses to assess the overall contribution from outdoor recreation in California.

Direct expenditures for outdoor recreation. During the study base year of 2008, recreational visitors to California parks and participants in the major recreation activities in California spent over \$20 billion on trip expenditures and equipment. The largest expenditure total (almost \$5.1 billion) occurred in the Southern California region, followed by the San Francisco Bay Area region and the Los Angeles region (over \$4 billion in each region). The Central Coast region had the smallest direct recreation expenditures among the seven regions, but still benefitted from almost \$1.2 billion in direct recreation expenditures.

The sources of direct recreation expenditures vary considerably among the regions. The Sierra region had the largest direct expenditures associated with visitation to federally-managed lands, while the Southern California region had the largest amount of expenditures associated with visitation to the SPS. Estimated regional and local park expenditures were greatest in the regions with the largest populations, including the Los Angeles, San Francisco Bay Area and the Southern California regions. Direct expenditures for the selected, major activities — largely driven by boating expenditures — were also largest in these three regions as were total expenditures on outdoor recreation equipment.

Figure 2-35 provides a detailed breakdown of direct, trip and equipment related expenditures by type of facility, activity and region.

Figure 2-35.
Direct Expenditures for Outdoor Recreation in 2008 by Type of Facility, Activity and Region
(in millions of 2008 dollars)

	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Statewide*
Trip-related Expenditures								
Federal lands*	\$35.1	\$350.4	\$320.9	\$441.1	\$607.2	\$1,298.5	\$451.0	\$3,504.3
State Park System*	\$618.5	\$441.5	\$345.8	\$346.5	\$551.5	\$147.6	\$964.4	\$3,416.0
Regional and Local Parks	\$163.4	\$699.3	\$1,499.6	\$64.7	\$1,166.8	\$72.3	\$1,452.3	\$5,118.4
Selected Major Activities**								
Hunting and Fishing	\$38.4	\$93.0	\$48.3	\$192.3	\$178.8	\$19.9	\$217.3	\$788.0
Boating	\$150.2	\$797.0	\$1,007.6	\$137.1	\$882.6	\$130.2	\$994.6	\$4,099.4
Golf at Public Courses	\$28.8	\$57.7	\$81.7	\$8.5	\$69.5	\$20.3	\$125.1	\$391.6
Activities subtotal	\$217.4	\$947.8	\$1,137.6	\$337.9	\$1,130.9	\$170.3	\$1,337.0	\$5,279.0
Equipment Expenditures	<u>\$136.3</u>	<u>\$471.5</u>	<u>\$939.6</u>	<u>\$68.9</u>	<u>\$949.3</u>	<u>\$83.7</u>	<u>\$859.8</u>	<u>\$3,509.1</u>
Total Direct Expenditures	\$1,170.7	\$2,910.4	\$4,243.5	\$1,259.2	\$4,405.8	\$1,772.5	\$5,064.6	\$20,826.8

Note: *Includes agency expenditures for operation and maintenance of recreational facilities.

**Adjusted to exclude proportion of these activities already counted in destination-based analyses above.

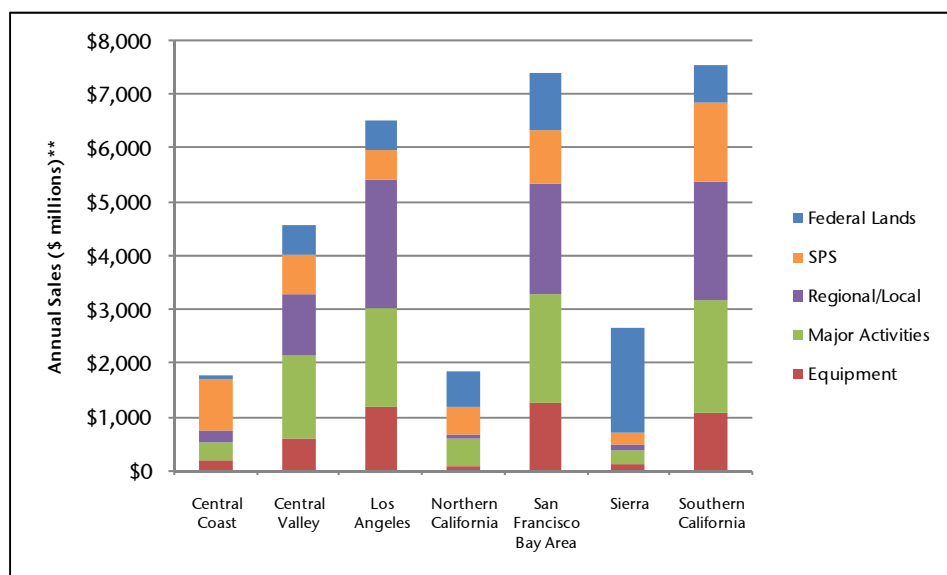
Source: BBC Research & Consulting, 2010.

Comparing these direct expenditures to the output, or value of production, of other industry sectors in California²⁸ provides useful context for these results. The approximately \$20.8 billion of direct expenditures related to outdoor recreation ranks among the output of the top 45 sectors (out of 440) in California. Some examples of industries with output of a similar magnitude include aircraft manufacturing (\$20.1 billion); accounting, tax preparation, bookkeeping, and payroll services (\$20.2 billion); and insurance agencies, brokerages, and related activities (\$21.1 billion).

Economic contribution from outdoor recreation. Including “multiplier” effects as recreation expenditures re-circulate throughout the regional and state economies, direct expenditures on outdoor recreation in California produced an estimated total of nearly \$40 billion in annual statewide sales (gross receipts) across all economic sectors. This represents about 1.1 percent of the total sales in California in 2008. The regional distribution of the total sales directly and indirectly related to recreation essentially mirrors the geographic distribution of direct expenditures.

Figure 2-36 depicts annual total sales related to outdoor recreation by source and region. A portion of the “multiplier effects” that occur as a result of direct expenditures in each region occur in other parts of the state. While these regional spillover effects are captured in the statewide totals, they cannot be attributed to a specific region using the economic modeling developed for this study. Consequently, the sum of total sales across the regions is about 18 percent lower than the \$39.6 billion statewide total. With this in mind, the region-specific total sales estimates understate the full economic effects in each region.

Figure 2-36.
Total Annual Sales Related to Outdoor Recreation by Region
(in millions of 2008 dollars)*



Note: *Regional breakdown does not capture some multiplier effects that spill over across regions. These region-specific estimates understate the actual totals because of multiplier effects that could not be attributed to particular regions.
 **Includes indirect and induced effects, also referred to as “multiplier effects.”

Source: BBC Research & Consulting, 2010.

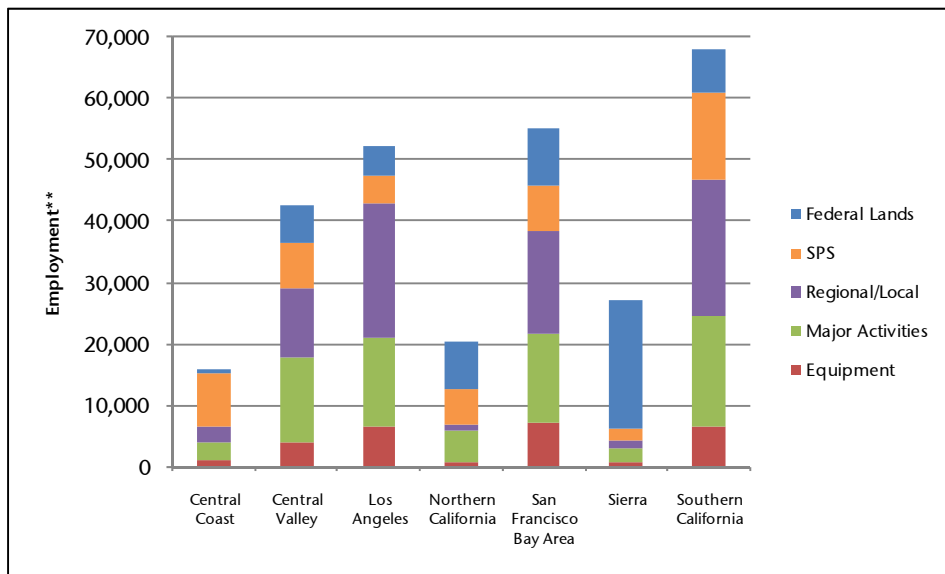
²⁸ The IMPLAN model defines and provides baseline information for 440 unique sectors.

Outdoor recreation directly and indirectly supported about 313,000 jobs in California in 2008 — or about 1.5 percent of all jobs in California in 2008. This total included more than 60,000 jobs in the Southern California region. Each of the seven regions benefitted from at least 15,000 jobs directly and indirectly related to outdoor recreation.

Direct expenditures related to outdoor recreation supported approximately 200,000 of the 313,000 jobs. When compared to the number of jobs attributed to specific industry sectors in California, this level of employment ranks among the top 30 sectors (out of 440). Some sectors in California with similar employment levels include the trucking transportation industry (185,000 jobs); legal services sector (222,000 jobs); and firms that support activities associated with agriculture and forestry (222,000 jobs).

Figure 2-37 depicts total employment related to outdoor recreation by source and region. As discussed in connection with total sales, a portion of the “multiplier effects” that occur as a result of direct expenditures in each region occur in other parts of the state. These jobs cannot be attributed to a specific region using the economic modeling developed for this study. The sum of total employment attributable to specific regions (just over 280,000 jobs) is about 10 percent lower than the statewide employment contribution from outdoor recreation. Consequently, the region-specific total job estimates understate the full employment effects in each region.

Figure 2-37.
Total Employment Related to Outdoor Recreation by Region



Note: *Regional breakdown does not capture some multiplier effects that spill over across regions. These region-specific estimates understate the actual job totals because of multiplier effects that could not be attributed to particular regions.
**Includes indirect and induced effects, also referred to as “multiplier effects.”

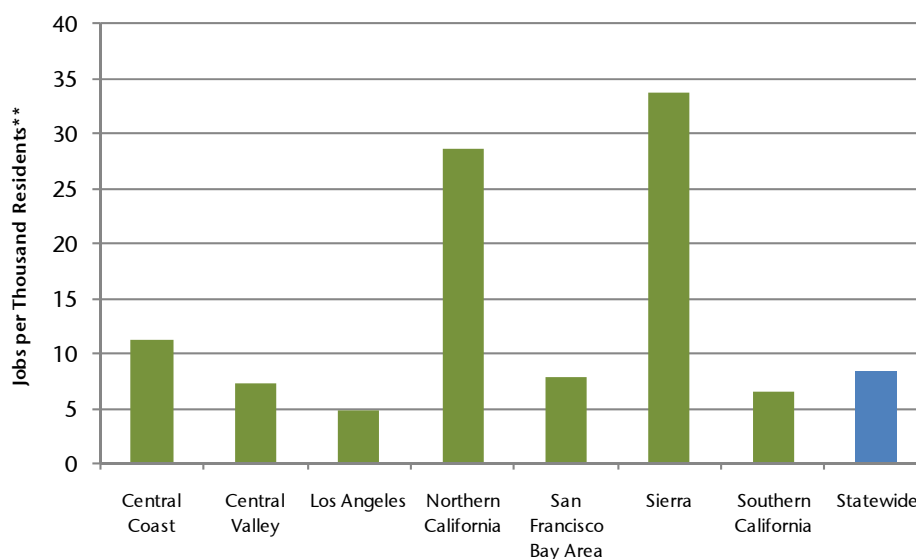
Source: BBC Research & Consulting, 2010.

Based on the geographic distribution of total sales and employment related to outdoor recreation shown in Figure 2-36 and Figure 2-37, it might initially appear that recreation is more important to the economies in California’s larger regions (e.g. Southern California, Los Angeles and the San Francisco Bay Area). The reality, however, is essentially the opposite. While the more populous

regions do receive the greatest total economic benefits, on a per capita basis the economic contribution of recreation is most important in the more rural regions of the state.

Figure 2-38 emphasizes the importance of outdoor recreation to the economies in the more rural regions of California by portraying the total number of jobs related to recreation per thousand residents for each region. In contrast to the preceding figures, the Northern California and the Sierra regions stand out in Figure 2-38. The ratio of total recreation-related employment to total population in both of these regions is more than triple the statewide average. The large number of recreation-related jobs per capita in these regions implies that recreation provides a substantial “economic impact” in these areas. The federally-managed recreation lands and the SPS facilities in the Northern California and Sierra regions draw large numbers of visitors from other parts of California and from outside of the state. This brings money into the regions and expands the size of their local economies.

Figure 2-38.
Total Employment Related to Outdoor Recreation per Thousand Residents in Each Region



Note: *Regional breakdown does not capture some multiplier effects that spill over across regions. These region-specific estimates understate the actual job totals because of multiplier effects that could not be attributed to particular regions.
 **Includes indirect and induced effects, also referred to as “multiplier effects.”

Source: BBC Research & Consulting, 2010.

Assessment of Economic Contribution Estimates and Comparison with Other Studies

It can be difficult to relate to numbers of the magnitudes described in the preceding section, involving tens of billions of dollars in annual sales and hundreds of thousands of jobs throughout California. The study team is confident that we have relied on the best available data, and the most widely used economic modeling system, to develop these economic contribution estimates. However, it is also useful to examine some comparisons between the economic contribution estimates derived in this study and the results from related analyses conducted previously in California and in other locations.

The only previous study that has endeavored to assess the overall, statewide economic contribution of outdoor recreation in California was the national study published by the Outdoor Industry

Foundation (OIF) in 2006. In addition to national estimates, the OIF study also produced estimates of the economic contribution from outdoor recreation for individual states. As discussed in Section 1 of this report, the activities included in the OIF study differed somewhat from the activities considered in this analysis. The OIF study also employed a different research approach than our study, relying primarily on household survey responses to ascertain recreation participation and expenditures.²⁹ Approximately 650 households in California were surveyed, including about 144 that indicated they had participated in the activities included in the OIF survey and spent money on those activities. As in our study, OIF used the IMPLAN model to estimate the overall economic contribution associated with direct recreation expenditures.

Despite the differences in study design and approach, the estimated magnitudes of the economic contribution from outdoor recreation in California are generally similar. The OIF study estimated the total annual statewide sales associated with recreation trip and equipment expenditures, including multiplier effects, at \$46 billion (which compares to just under \$40 billion from our current study). The OIF estimate of total recreation-related employment in California, including multiplier effects, was 408,000 jobs (compared to about 313,000 from our current study).

At least two other studies have focused on the statewide impacts from major recreation activities in California. The 2002 ***California Boating Needs Assessment*** published by the California Department of Boating and Waterways, estimated that boating-related activity in California supported approximately 284,000 jobs in California — though that figure included commercial fishing and fish processing and manufacturing of boating equipment for export outside of California. ***The California Golf Economy Report*** produced in 2008 for the California Alliance for Golf estimated the statewide economic contribution from golf at \$15.1 billion in total sales and nearly 160,000 jobs. In contrast to our study, however, the ***Golf Economy Report*** included golf played on all types of golf courses (not just publicly-owned courses) and also included other industry-related effects such as golf course capital investments and golf-related residential development.

There have been previous studies of the economic contribution specifically related to visitation and operation of the SPS. The ***Economic Contribution and Benefits of Recreation in the California State Park System*** documented in a separate volume, provides a detailed comparison of this study's economic contribution estimates specific to the SPS with those from the earlier studies.

Aside from the overall magnitude of the economic contribution results developed in this study, some readers may also wonder about the reliability of the multipliers used to estimate the “ripple effects” as dollars spent on recreation re-circulate throughout the economy. While the concept of multiplier effects is fairly intuitive, the actual size of the multiplier for any particular economic activity cannot be readily verified based on external information. However, it may be helpful to review the scale of the multiplier effects derived in this study with other studies of the economic contribution from recreation activities.

Figure 2-39 provides a summary comparison of the results from this study with several other studies of the economic contribution of recreation activities. While each of these studies had a different focus and incorporated somewhat different methods and key assumptions, the primary purpose of this figure is to compare the ratios shown in last two columns. These ratios, representing the total

²⁹ In addition to their household surveys, the OIF study also incorporated data from the FWS National Survey of Fishing, Hunting, and Wildlife-Associated Recreation — as does our current study.

estimated economic contribution per dollar of direct recreation expenditures and the total number of jobs per dollar of direct recreation expenditures, allow for a comparison of the scale of the estimated multiplier effects from recreation in each of the studies. This comparison suggests that the multipliers developed in this study are generally consistent with other outdoor recreation studies, if not somewhat conservative compared with those prior studies. In part, the lower jobs multiplier in this study (particularly compared to the older studies shown in Figure 2-39) reflects the effects of inflation in wages and salaries over time. Simply put, one million dollars pays for fewer workers than it did five, ten or fifteen years ago.

Figure 2-39.
Comparison of Study Multipliers with Other Economic Studies of Outdoor Recreation

Study	Estimated Economic Effects			Key Ratios	
	Direct Expenditures	Total Sales or Output	Total Jobs	Total Sales/ Direct Expenditures	Jobs per \$1 million in Direct Expenditures
2010 California Outdoor Recreation	\$20.8 billion	\$39.6 billion	313,000	1.90	15.0
Outdoor Industry Foundation National Study	\$237 billion	\$592 billion	5,059,000	2.50	21.3
California Golf Study*	\$2.85 billion	\$6.47 billion	76,748	2.27	26.9
California Boating Study	\$10.2 billion	\$16.5 billion	284,060	1.62	27.8
Hunting and Fishing in Texas	\$8.9 billion	\$15.8 billion	139,404	1.78	15.7
1995 California State Parks Study	\$1.61 billion	\$4.12 billion	62,235	2.56	38.6
National Study of NPS Visitor Spending	\$8.62 billion	\$12.52 billion	267,000	<u>1.45</u>	<u>31.0</u>
Study averages				2.01	25.2

Note: *Includes only effects related to golf facility operations, does not include real estate development effects from this study.

Source: BBC Research & Consulting, 2010 based on the following studies: Outdoor Industry Foundation (2006); *The California Golf Economy Report* (2008); *California Boating Facility Needs Assessment* (2002); *The 2006 Economic Benefits of Hunting, Fishing and Wildlife Watching in Texas*; *The Impact on Local Economies of Spending by Visitors to California State Parks (1995)*; and *Economic Significance of Recreational Uses of National Parks and Other Public Lands (2005)*.

Overall, we conclude that this study's estimates of the economic contribution of outdoor recreation in California appear relatively conservative compared with previous, related studies. In part, the conservative nature of these results reflects the somewhat restrictive definition of outdoor recreation used in this study, which limits the analysis to activities occurring on public lands and in common spaces. We also believe that the expenditures associated with recreation at local and regional parks, which were estimated on the basis of very limited data and considerable judgment, may understate the economic contribution that results from recreation at these types of facilities.

SECTION 3.

Economic Benefits Californians Receive from Participating in Outdoor Recreation

The economic benefit of recreation is a different concept from the economic contribution of recreation activities. The preceding portions of this report have focused on the economic contribution of recreation activities that result from spending by visitors to SPS facilities; federally-managed lands;¹ local and regional parks; and other public recreation settings in California. This section, however, considers the additional value of the recreation experience to the visitors themselves.

Economic Benefit Concept

The term “economic benefits” describes how much people value their own participation in recreation activities, over and above what they have to pay to participate. This concept can also be described in terms of “consumer’s surplus,” or the amount that individuals would be willing to pay to be able to participate in particular recreation activities (or how much they would be willing to accept to forego participation in those activities).

Economists consider outdoor recreation, and other types of “environmental amenities”, to be examples of what are termed “non-market goods” — meaning that they are things that people value but which do not have explicit prices determined by markets. Other examples of non-market goods include improvements in air or water quality, reductions in crime rates, and living in proximity to beaches or protected natural areas.

Economists have developed a variety of techniques for establishing the value of non-market goods, including “contingent valuation” or surveys to ascertain what people are willing to pay to enjoy these types of amenities. For example, if a hypothetical Californian is willing to pay \$55 to go fishing for a day, but the actual cost of their fishing trip is only \$30, they receive a net economic benefit of \$25 per day from their fishing experience.

The economic benefits analysis combines two categories of information — estimates of the value that participants receive from each day of participation in a particular recreation activity (net of their costs to participate) and estimates of the amount of annual recreation participation by activity-type.

Economic benefits per visitor day. The first part of the benefits equation is the value of participation (per visitor, per day) by activity type. There are three existing sources of economic benefits values that can potentially be applied for this purpose:

- the willingness-to-pay responses (WTP) from the SPOA;

¹ Federally managed lands include sites managed by the National Park Service (NPS), the United States Forest Service (USFS), the Bureau of Land Management (BLM), the United State Fish and Wildlife Service (USFWS) and the United States Army Corps of Engineers (Corps).

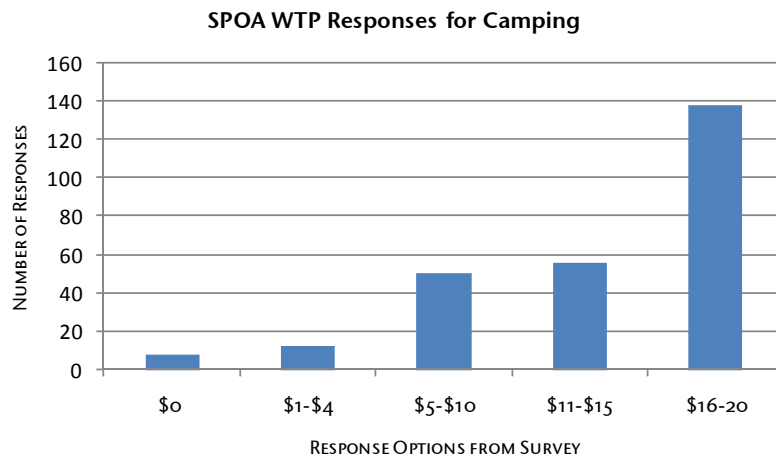
- the U.S. Forest Service meta-analysis of previous studies of recreational benefits developed by Dr. Loomis (USFS); and
- the “unit day values” developed by the U.S. Army Corps of Engineers (Corps) for analyzing the economic value of recreation at Corps facilities.

The advantage of the willingness-to-pay results from the SPOA survey is that the survey specifically seeks to capture the value that Californians place on participating in various recreational activities. One disadvantage of the SPOA willingness-to-pay survey results, however, is the clustering of most responses in the highest value category for some of the most highly-valued recreational activities. This clustering, illustrated in Figure 3-1, indicates that many respondents would likely be willing to pay more to participate in some activities than the amounts indicated in any of the response categories for the SPOA willingness-to-pay questions. Further, in the context of the SPOA survey, many of the respondents are likely providing a general value for recreation participation irrespective of location. Consequently, the values for activities like walking, picnicking or road biking may be more reflective of the economic benefit of participating in those activities in local neighborhoods or local parks than the benefit derived from participation at federal or state recreation sites.

Finally, the SPOA is a general survey of Californians and includes those who actually choose to visit federal, state and local recreation areas and those who do not. For all of these reasons, the study team believes the SPOA willingness-to-pay survey results are likely to underestimate the economic benefits from activities at federal and state recreation sites and may be considered to provide a lower bound estimate of the aggregate benefit value.

Figure 3-1.
Example of Value Truncation Issues with Willingness-to-Pay (WTP) Results from the SPOA Survey

Source: BBC Research & Consulting, 2010 based on survey data from the SPOA.



With these issues in mind, and due to the presence of federally-managed lands in the analysis, we believe it is appropriate to also develop benefits estimates based on previous studies of recreation use values, as summarized in USFS analysis. However, there are also issues in using the benefits estimates in that analysis for purposes of estimating the economic benefits of recreation across a wide range of settings throughout California. Particular concerns in this context include the following:

- The benefits estimates in the USFS study are based on over 1,200 prior studies — largely, though not entirely, of visitors to federally-managed lands (e.g., National Forests, National Parks). Differences in the activities available on these lands, and perhaps the quality of the recreation opportunities, may affect their applicability to

recreation participation at non-federally-managed locations, especially smaller local parks.

- A number of primary activities common in the SPS, and at local and regional parks, are not included in the USFS benefits estimates (such as road biking, walking for pleasure, team sports and surfing). This required assigning these activities to the USFS categories of general recreation or other recreation.
- In some other important instances (e.g. backpacking, pleasure driving and educational-type activities), the values in the USFS study are based on either a small number of previous studies or a single study.

With these issues in mind, and based on the results illustrated later in this section, we believe the benefit estimates from the USFS study provide an upper bound estimate of the aggregate annual benefit value for recreation at federally-managed and SPS facilities.

The third source of recreation benefit values is the unit day value (UDV) method developed and used by the Corps and some other federal agencies.² In some ways, application of the UDV method is simpler than using the other two sources of recreation benefits estimates. The UDV method divides all recreation activities into four categories: general recreation, specialized recreation, general hunting and fishing recreation, and specialized hunting and fishing recreation. General recreation includes most common recreation activities, while specialized recreation includes activities that require more skill from participants and/or specialized or unusual facilities or amenities.

The UDV method also requires assigning a relative value to the quality of the recreation facilities themselves. Based on the criteria and factors outlined in the Corp's latest guidance memorandum, the study team assigned a typical value of 75 out of 100 points for general recreation at federal and SPS facilities and 55 out of 100 points for specialized recreation at federal and SPS facilities. The Corp's criteria include the variety and quality of the recreation experiences available at the park, the extent to which those experiences are widely available at nearby substitute facilities, the carrying capacity of the park relative to its use, the accessibility of the park and the environmental and aesthetic characteristics of the park.³

Figure 3-2, on the following page, depicts the estimated economic benefits per visitor per day (in 2008 dollars) for each primary activity category included in this analysis. As suggested by the preceding narrative, the SPOA values are typically the lowest and the USFS values are typically the highest. In many cases, though not all, the UDV method provides a mid-range estimate of the economic values of the activities.

² The UDVs are also used in some evaluations by the U.S. Bureau of Reclamation and the U.S. Department of Agriculture, Natural Resource Conservation Service.

³ Memorandum for Planning Community of Practice. Department of the Army, U.S. Army Corps of Engineers. Pages 5-8. November 20, 2009.

Figure 3-2.
Estimated Benefits per Day from Alternative Sources
for Primary Activities at Federal and SPS Facilities (2008 dollars)

Primary Activities	Benefits per Day			
	USFS	Corps UDV	SPOA	Average
Sailboating	\$115	\$22	\$14	\$50
Mountain Biking	\$84	\$22	\$6	\$37
Golfing	\$56	\$22	\$16	\$31
Backpacking	\$59	\$22	\$10	\$31
Hunting	\$53	\$22	\$14	\$30
Water Skiing/Wakeboarding	\$56	\$22	\$11	\$30
Boating/Jetskiing	\$53	\$22	\$11	\$29
Float Activities	\$54	\$22	\$9	\$28
Motorcycling/Scooters	\$68	\$9	\$7	\$28
Driving for Pleasure*	\$68	\$9	\$7	\$28
Surfing/Windsurfing	\$56	\$22	\$6	\$28
Skiing	\$36	\$22	\$14	\$24
Other Recreation	\$56	\$9	\$6	\$23
Fishing	\$38	\$22	\$9	\$23
Rollerblading	\$56	\$9	\$4	\$23
Road Biking	\$56	\$9	\$3	\$23
Jogging/Running	\$56	\$9	\$2	\$22
Camping	\$42	\$9	\$14	\$22
Nature Walks/Wildlife	\$48	\$9	\$6	\$21
Basic Snow Activities	\$40	\$9	\$14	\$21
Swimming/Other Water	\$49	\$9	\$5	\$21
SCUBA/Snorkeling	\$35	\$22	\$5	\$21
Picnicking	\$47	\$9	\$5	\$20
Off-road Motorized	\$26	\$22	\$13	\$20
Beach & Tide Pools	\$45	\$9	\$5	\$20
Horseback Riding	\$21	\$22	\$14	\$19
Wildflowers/Other Nature	\$42	\$9	\$6	\$19
Sightseeing/Non-reported*	\$42	\$9	\$6	\$19
Photography	\$42	\$9	\$5	\$19
Relaxing/Stargazing	\$40	\$9	\$6	\$18
Games	\$40	\$9	\$2	\$17
Walking for pleasure	\$40	\$9	\$2	\$17
Geocaching/GPS	\$35	\$9	\$6	\$17
Bird Watching	\$34	\$9	\$6	\$16
Hiking & trails	\$35	\$9	\$4	\$16
Historical Tourism	\$7	\$22	\$9	\$13
Organized team sports**			\$9	\$9
School & Educational	\$7	\$9	\$9	\$8
Tennis**			\$6	\$6
Skateboarding**			\$4	\$4
Using play equipment**			\$2	\$2

Note: * Primary activity categories used in federal lands benefit calculations only.

** Primary activity categories used in regional and local benefit calculations only. Only SPOA benefit values are used in the calculation of regional and local economic benefits.

Source: BBC Research & Consulting 2010.

Economic Benefits from Recreation on Federal-managed Facilities

The total economic benefits from outdoor recreation are calculated by applying the benefit estimates per visitor day to annual visitation estimates by activity. The following discussion presents annual visitation by activity data and provides calculations of the annual economic benefits for recreation at federal facilities in California. Federal recreation facilities include lands managed by the NPS, USFS, BLM, USFWS and Corps.

Primary activities of visitors to federally-managed facilities. Federally-owned and managed lands cover large parts of California. The NPS, USFS, BLM, USFWS and Corps each manage multiple recreation facilities and areas in California. These agencies offer varying degrees of public outdoor recreation opportunities. Each of these agencies has a system in place to estimate recreation-related visitation and activity participation. However, the frequency, availability and quality of the data vary across agencies. BBC collected the most recent and detailed visitation-by-activity data available from each agency to estimate overall annual activity-based visitation on federally-managed lands in California. As mentioned in the previous section, BBC collected data for multiple years and estimated the average annual visitation to reduce variation due to factors such as drought, wildfires or park construction activities. The overall estimates are based on visitation during the years 2005 through 2009.

The study team analyzed the activity-based visitation data for each federal agency. For purposes of this analysis, we aggregated the activity codes from each agency's data source into a total of 24 common activity categories. The annual activity days for each primary activity were then summed across all federal agencies. Figure 3-3 shows the estimated total annual activity days by activity for federal recreation facilities in California.

On average, there are almost 90 million recreational visitor days at federally-managed lands in California. Across all agencies, sightseeing activities (13.2 million activity days) and hiking and trail activities (10.5 million activity days) were the most common primary recreation activities. About 75 percent of the visitors to federally-managed lands are California residents — implying an average of over 67.3 million annual activity days for Californians at federal recreation facilities in the state.

Figure 3-3.
Annual Primary Activity Days at Federal Recreation Facilities (in millions of visitor days)

Primary Activity	Annual Days	Primary Activity	Annual Days
Sightseeing/Non-reported	13.2	Nature Walks/Wildlife	3.0
Hiking & trails	10.5	Biking	3.0
Skiing	6.4	School & Educational	2.9
Camping	5.7	Driving for Pleasure	2.5
Picnicking	5.4	Relaxing/Stargazing	2.3
Photography	5.0	Hunting	1.9
Fishing	4.5	Jogging/Running/Exercise	1.9
Swimming/Beach/Surf/Scuba/Other Water	4.2	Water Skiing/Wakeboarding	0.9
Historical Tourism	3.7	Backpacking	0.8
Other Recreation	3.6	Non-Motorized boating	0.7
Boating/Jetskiing	3.6	X/C Ski/Other Winter non-motorized	0.6
Off-highway Motorized	3.1	Horseback Riding	0.3
Total Primary Activity Days (millions)			89.7

Source: BBC Research & Consulting, 2010 based on data from NPS, USFS, BLM, Corps and NWR.

Total annual benefits for Californians from recreation at federally-managed facilities.

By applying the estimates of the economic benefits of recreation per visitor day for each activity to the estimated total activity days (by type of activity) at federal recreation facilities, the study team estimated the annual economic benefits that federally-managed lands provide to Californians. Estimated total recreation benefits from California’s federally-managed recreation areas were reduced by 25 percent to account for the portion federal facility recreation benefits that accrue to visitors from outside California.

Figure 3-4 summarizes the estimated average annual economic benefits that California residents received from recreating at federal recreation facilities by region. These figures represent the average annual benefits between 2005 and 2008. Given the wide range of the economic benefits per activity day estimates from the three sources used in this analysis (USFS, SPOA and Corps UDV), the resulting aggregate benefit estimates also differ considerably depending on which source is used.

As stated earlier in this report, the SPOA-based estimates form a lower-bound estimate for recreation benefits and the USFS-based estimates form an upper bound. The Corps UDV estimates, which produce an annual economic benefit to Californians from federal lands recreation of about \$965 million, provide a mid-point estimate. The average of the annual federal lands benefit estimates from the three sources of benefit values is approximately \$1.4 billion per year.

It is important to note that these estimated benefits represent the value that visitors place on their recreation experiences, over and above their direct expenditures to travel to the parks.

Figure 3-4.
Estimated Annual Recreation Benefits of Federally-managed Lands by Region
(in millions of 2008 dollars)

Region	Benefit Value Estimates Basis			
	USFS	Corps UDV	SPOA	Average
Central Coast	\$35	\$11	\$6	\$17
Central Valley	\$249	\$85	\$45	\$126
Los Angeles	\$392	\$133	\$66	\$197
Northern California	\$324	\$114	\$61	\$166
San Francisco Bay Area	\$768	\$243	\$121	\$377
Sierra	\$631	\$225	\$142	\$333
Southern California	\$414	\$153	\$86	\$218
Total Federal Lands	\$2,814	\$965	\$526	\$1,435

Source: BBC Research & Consulting, 2010.

As shown above, the federal facilities in the San Francisco region produce the largest annual economic benefit for California residents. This result reflects the presence of several heavily visited NPS facilities in the City of San Francisco. Federal facilities in the Sierra Region also produce large benefits for California visitors, partly reflecting the high benefit value of downhill skiing activities.

Economic Benefits from Recreation at the State Parks System

The following narrative presents annual visitation by activity data and provides calculations of annual economic benefits for recreation at SPS facilities.

Primary activities of SPS visitors. The State Parks Visitation Survey (SPVS) provided data on the primary activity that visitors to the SPS participated in during their visit. In total, SPVS responses encompassed 66 potential types of activities ranging from backpacking to off-road motorized activities.

The study team analyzed the distribution of primary activities by park type based on the SPVS, separated between day users and campers. For example, hiking and trail activities are the primary activity for 27.4 percent of visitors to State Park units, but these activities are the primary activity for less than one percent of visitors to State Beaches (although walking for pleasure is a common primary activity at State Beaches). For purposes of this analysis, we aggregated the 65 primary activity codes from the SPVS into a total of 33 activity categories.

The study team then estimated the total number of annual activity days, by activity category, based on the distribution of primary activities for each park type (separated between day users and campers) and the annual total number of visitors for each park type (again distinguishing visitors and campers). Returning to the example from the preceding paragraph, the number of hiking and trail activity days was estimated based on the percentage of visitors to State Park units that identified this as their primary activity in the SPVS, multiplied by the total number of State Park visitors, plus the percentage of visitors to State Beaches that identified this activity as their primary activity multiplied

by the total annual number of State Beach visitors and so on for each park type in the SPS.⁴ Figure 3-5 shows the estimated total annual activity days by activity for the SPS. The study team used average visitation figures from FY06 through FY08.

Visitors to the SPS averaged 77.6 million activity days over the three year period from FY06 through FY08. For the system as a whole, hiking and trail related activities (10.7 million activity days) and general relaxation-type activities (11.1 million activity days) were the most common motivators for their visits. As discussed in previous sections, about 92 percent of the visitors to the SPS are California residents — implying an average of over 71 million annual activity days for Californians at SPS units.

Figure 3-5.
Annual Primary Activity Days at SPS Facilities (in millions of visitor days)

Primary Activities	Annual Days	Primary Activities	Annual Days
Relaxing/Stargazing	11.1	Jogging/Running	0.9
Hiking & trails	10.7	Games	0.7
Beach & Tide Pools	7.1	Boating/Jetskiing	0.7
Walking for pleasure	6.9	Photography	0.6
Swimming/Other Water	5.0	SCUBA/Snorkeling	0.2
School & Educational	4.3	Backpacking	0.2
Camping	4.3	Motorcycling/Scooters	0.2
Picnicking	4.2	Rollerblading	0.2
Off-Highway Vehicles	3.3	Bird Watching	0.2
Historical Tourism	2.5	Horseback Riding	0.2
Surfing/Windsurfing	2.0	Float Activities	0.1
Fishing	1.7	Geocaching/GPS	0.1
Road Biking	1.5	Water Skiing/Wakeboarding	0.1
Nature Walks/Wildlife	1.5	Skiing	<0.1
Wildflowers/Other Nature	1.2	Sailboating	<0.1
Basic Snow Activities	1.1	Other Recreation	3.7
Mountain Biking	1.0		
Total Primary Activity Days (millions)			77.6

Source: BBC Research & Consulting, 2010 based on survey data from the SPVS.

Total annual benefits for Californians from recreation at SPS facilities. By applying the estimates of the economic benefits of recreation per visitor day for each activity to the estimated total activity days (by type of activity) at each unit in the SPS, the study team estimated the annual economic benefits that the SPS provides to Californians who visit the parks. One additional analytical step was required for these calculations. As discussed earlier in this report, approximately 8 percent of the visitors to the SPS are residents of other states. To estimate the benefits of the SPS to

⁴ As noted elsewhere in this report, the SPVS collected surveys from 26 SPS units, including 4 State Beaches, 4 State Historical Parks, 9 State Parks, 6 State Recreation Areas, and 2 State Vehicular Recreation Areas. The samples of survey responses, by park type, ranged from 770 respondents representing about 5,000 visitors at State Vehicular Recreation Areas to 3,350 respondents representing about 13,000 visitors at State Parks.

California residents, the total recreation benefits estimates were reduced by 8 percent to account for the portion of park system benefits that accrue to visitors from outside California.

Figure 3-6 summarizes the estimated average annual economic benefits that California residents received from recreating at SPS units by region in which the park units are located. These figures represent the average annual benefits over the three year FY06-FY08 period. Given the wide range of the economic benefits per activity day estimates from the three sources used in this analysis (USFS, SPOA and Corps UDV), the resulting aggregate benefit estimates also differ considerably depending on which source is used.

As stated earlier in this report, the study team believes the SPOA-based estimates understate the economic benefits of the SPS and the USFS-based estimates likely overestimate the benefits of the system. The Corps UDV estimates, which suggest the annual economic benefit to Californians from recreating at SPS units is on the order of almost \$850 million, provide a useful mid-point between the other benefits estimates. The average of the annual SPS benefit estimates from the three sources of benefit values is a little less than \$1.4 billion per year.

These estimated benefits reflect the value of outdoor recreation experiences to the participants, over and above the direct expenditures for travel to visit the parks.

Figure 3-6.
Estimated Annual Recreation Benefits of the SPS by Park Location Region
(in millions of 2008 dollars)

Region	Benefit Value Estimates Basis			
	USFS	Corps UDV	SPOA	Average
Central Coast	\$481	\$155	\$82	\$239
Central Valley	\$379	\$109	\$54	\$181
Los Angeles	\$126	\$38	\$20	\$61
Northern California	\$197	\$53	\$27	\$93
San Francisco Bay Area	\$372	\$100	\$51	\$174
Sierra	\$144	\$47	\$24	\$72
Southern California	\$1,154	\$344	\$174	\$557
Total SPS	\$2,853	\$846	\$433	\$1,377

Source: BBC Research & Consulting, 2010.

Regardless of which source of benefit values is used, the parks in the Southern California region produce the largest annual economic benefit for California residents. This result simply stems from the larger visitation levels at those facilities compared to park units in the other regions.

Economic Benefits from Regional and Local Parks, Playgrounds and Public Sports Facilities

The following discussion presents annual visitation by activity data and provides calculations of annual economic benefits for regional and local parks in California.

Primary activities at regional and local parks. Local and regional parks encompass a wide range of facilities, including neighborhood parks, larger regional parks, playgrounds and public sports facilities. As discussed in Section 2, data from the SPOA indicate that Californians participate in outdoor recreation in local and regional parks far more frequently than in state or federally-managed facilities.

As discussed in Section 2, the study team estimates that Californians spent at least 1.3 billion visitor days at local and regional parks in 2008.⁵ The study team used an activity distribution derived from the SPOA to calculate visitor days by primary activity for 2008. The derivation of visitor days by primary activity is discussed in more detail in Section 2.

For California regional and local parks as a whole, walking for pleasure (375 million activity days); using play equipment (154 million activity days); and organized team sports (130 million activity days) were the most common recreation activities. Figure 3-7 presents estimated primary activity days at regional and local parks in 2008.

**Figure 3-7.
Primary Activity Days at
Regional and Local
Parks, 2008
(in millions of days)**

Source:
BBC Research & Consulting, 2010 based on
survey data from the SPOA.

Primary Activity	Annual Days (Millions)
Walking for pleasure	375
Using play equipment	154
Organized team sports	130
Relaxing/Stargazing	123
Hiking & trails	95
Dog walking	64
Jogging/Running	64
Picnicking	56
Road Biking	32
Fishing	28
Nature Walks/Wildlife	26
Swimming/Other Water	26
Float Activities	17
Tennis	13
Skateboarding	2
Martial arts	1
Other Recreation	<u>85</u>
Total Primary Activity Days	1,293

⁵ As discussed in footnote 5 in Section 2, total annual recreation days at local and regional parks could be as high as 1.9 billion days based on comparison of data from the SPOA with the visitation counts at federally-managed lands and the SPS, but we have opted to use 1.3 billion days to provide a more conservative estimate of economic contribution and benefits.

Total annual benefits for Californians from recreation at regional and local parks. The study team applied the economic benefit per visitor day estimates for each activity to the estimated annual activity days (by type of activity).

Only the benefit value estimates from the SPOA were used to calculate local and regional park economic benefits. The SPOA was used exclusively because the survey context allowed respondents to provide a general value for recreation participation irrespective of location. Given the much greater frequency of visits to regional and local parks than to state or federally-managed facilities, it is likely that survey respondents provided willingness-to-pay estimates for such activities as walking, team sports and use of play equipment primarily with local recreation in mind. The value truncation issue described earlier related to the SPOA WTP estimates does not apply to most of the primary activities at local and regional parks. Furthermore, the USFS and Corps UDV benefit estimates are specifically targeted for recreation at federally-managed lands, which often offer a different type of recreation experience than regional or local parks.

Figure 3-8 summarizes the estimated average annual economic benefits that California residents received from recreating at regional and local parks by region. The estimated benefits in the following table are over and above any direct expenditures by park visitors to travel to the parks or purchase recreation-related equipment.

Figure 3-8.
Estimated Annual
Recreation Benefits of
Regional and Local Parks
by Region
(in millions of 2008
dollars)

Source:
 BBC Research & Consulting.

Region	Economic Benefit Estimate
Central Coast	\$163
Central Valley	\$700
Los Angeles	\$1,501
Northern California	\$65
San Francisco Bay Area	\$1,168
Sierra	\$72
Southern California	\$1,453
Total Regional and Local Parks	\$5,122

Total annual economic benefits derived from recreation at regional and local parks are estimated at about \$5.1 billion. The parks in high population regions, such as Los Angeles, Southern California and the San Francisco Bay regions, produce the largest annual economic benefit for California residents due to the high usage of parks in the large metropolitan areas.

Additional Economic Benefits of Selected Activities

As discussed in Section 2, hunting/fishing, boating and golfing on publicly-owned courses are popular activities in California with high levels of annual participation. The economic benefits from hunting/fishing and boating have only been partially captured in the preceding analyses of the SPS and federally-managed lands; whereas, golfing on publically-owned course has yet to be addressed.⁶

⁶ As discussed in Section 2, to be consistent with this study's focus on participation on public lands and in common spaces, only golfing on publicly-owned courses has been considered in this analysis.

The following describes the estimated additional annual participation by Californians in each of these activities and corresponding economic benefits.

Additional participation by Californians in selected activities. The FWS' 2006 FHWR was the primary data source used to estimate annual hunting and fishing visitor days in California. The FHWR results also indicated that Californians made up approximately 94 percent of fishing days and essentially all the hunting days. After reducing visitation estimates to reflect the hunting and fishing days already captured elsewhere in the study, BBC estimated additional annual fishing and hunting days by Californians of approximately 9.7 million and 2.4 million days, respectively.

The SPOA and CBFNA were the primary data source used to estimate boating participation in California. BBC adjusted visitation estimates to account for boating days already captured, including boating at SPS facilities and on federally-managed lands as well as boating days by anglers. BBC estimated additional boating days by Californians to be approximately 52.3 million days for motor boating and approximately 16.4 million days for sail boating.

Golfing participation at publicly-owned courses in California were based on data from the PGA of America. Assuming Californians represent essentially all golfing at publicly-owned courses, BBC estimated approximately 8.3 million rounds of golf by Californians annually (at publicly-owned courses).

More detailed information on the data sources and methods used by BBC to estimate the additional participation in these activities is discussed in Section 2.

Additional total annual benefits for Californians from selected activities. The study team applied the economic benefit per visitor day estimates for each activity to the estimated additional annual activity days (by type of activity).

Figure 3-9 summarizes the estimated additional average annual economic benefits that California residents received from participation in the selected activities. Given the wide range of the economic benefits per activity day estimates from the three sources used in this analysis (USFS, Corps UDV and SPOA), the resulting aggregate benefit estimates also differ considerably depending on which source is used. The range is especially pronounced in this analysis as a result of the relatively high USFS-based value estimates for sail boating and boating/jetskiing in combination with the high level of annual participation in boating.

As stated earlier in this report, the SPOA-based estimates form a lower-bound estimate for recreation benefits and the USFS-based estimates form an upper bound. The Corps UDV estimates — which produce an annual economic benefit to Californians of about \$2 billion for hunting and fishing, boating and golf — provide a mid-point annual benefit estimate. The average of the annual benefit estimates based on the three different sources of benefit values is approximately \$2.9 billion per year. Boating-related benefits account for about 80 percent of these benefits. At the other end of the spectrum, benefits related to hunting represent just over 2 percent of the total benefits shown in Figure 3-9.

It is important to note that these estimated benefits represent the value that visitors place on their recreation experiences, over and above their direct expenditures to participate in these activities.

Figure 3-9.
Estimated Additional Annual Recreation Benefits for Hunting/Fishing, Boating and Golfing at Publicly-owner Courses (in millions of 2008 dollars)

Region	Benefit Value Estimates Basis			
	USFS	Corps UDV	SPOA	Average
Central Coast	\$232	\$84	\$45	\$121
Central Valley	\$1,029	\$352	\$191	\$524
Los Angeles	\$1,241	\$419	\$226	\$628
Northern California	\$309	\$136	\$63	\$169
San Francisco Bay Area	\$1,253	\$441	\$231	\$641
Sierra	\$183	\$65	\$35	\$95
Southern California	\$1,359	\$489	\$258	\$702
Total	\$5,607	\$1,986	\$1,048	\$2,881

Source: BBC Research & Consulting, 2010.

As shown above, the additional participation in the selected activities in the Southern California region produce the largest annual economic benefit for California residents — about 24 percent of the statewide benefits. Californians of the Los Angeles and San Francisco Bay Area regions also received relatively high levels of benefits from these selected activities.

Total Annual Economic Benefits of Outdoor Recreation

The recreational opportunities offered throughout California provide a substantial economic benefit to Californians. Figure 3-10 shows the average estimate of the annual benefit Californians receive from outdoor recreation (based on three different sources of values per activity day).

Figure 3-10.
Annual Economic Benefit for Californians from Outdoor Recreation (millions of 2008 dollars)

	Federally-managed Lands	State Park System (SPS)	Regional and Local Parks	Selected Major Activities	Total
Central Coast	\$17	\$239	\$163	\$121	\$541
Central Valley	\$126	\$181	\$700	\$524	\$1,531
Los Angeles	\$197	\$61	\$1,501	\$628	\$2,387
Northern California	\$166	\$93	\$65	\$169	\$493
San Francisco Bay Area	\$377	\$174	\$1,168	\$641	\$2,361
Sierra	\$333	\$72	\$72	\$95	\$572
Southern California	\$218	\$557	\$1,453	\$702	\$2,930
Statewide	\$1,435	\$1,377	\$5,122	\$2,881	\$10,814

Source: BBC Research & Consulting, 2010.

Using the average of the daily benefit estimates from the three different sources described in this section, Californians receive an annual benefit from participating in outdoor recreation of just under \$11 billion per year in 2008 dollars. Analyzing the three different sources of values per activity day

separately indicates a range for this annual benefit estimate of between \$7 billion and \$16.5 billion per year. Given this relatively wide range of estimates, it may be most appropriate to consider the annual benefits of outdoor recreation to Californians in terms of its general magnitude (billions of dollars per year) rather than focusing on the more specific estimates of \$7 billion, \$11 billion or \$16.5 billion.

Based on the results shown in Figure 3-10, the benefits received from activities at local and regional parks account for over 45 percent of the total overall benefits. This finding reflects the much greater number of recreation visits to local and regional parks and highlights the importance of these facilities for meeting the high demand for local recreational opportunities. Given the importance of local recreation in the overall benefit estimates, the estimated distribution of the benefits across the seven regions is generally correlated with population.

It is worth noting that the annual recreation benefit estimates just described do not include the benefits from participation in local outdoor recreation outside of parks. As discussed in Section 1, an additional 1.5 billion days of recreation by Californians may occur outside of parks including such activities as walking for fitness and pleasure, road bicycling, dog walking and driving for pleasure through natural settings (see Figure 1-4).

Comparison of Economic Benefit Estimates with Other Studies

The method used in this study to estimate the economic benefits of outdoor recreation received by recreation participants — based on a combination of daily benefit estimates for various types of activities and estimated total participation in those activities — has been widely used in previous studies. The 2005 meta analysis for the USFS conducted by Dr. John Loomis reviewed more than 500 separate studies of the net economic values of outdoor recreation activities in a variety of settings across the country. However, we are not aware of other studies that have developed overall estimates of the economic benefits of outdoor recreation on a statewide basis.

It may, however, be helpful to place the economic benefits estimates from this study in context through comparisons with a few examples from prior studies. The \$11 billion estimated annual economic benefit of outdoor recreation in California, based on the average of the daily benefit estimates for each activity, corresponds to an average benefit per recreation day of about \$7 per person.⁷

Studies that have focused primarily on state or federally-managed lands have typically estimated higher benefits per activity day. For example, a 2000 study of the nationwide economic benefits from recreation in wilderness areas estimated that the 14.5 million visitor days in those areas generated an economic benefit for the visitors of \$574 million per year (almost \$40 per visitor day).⁸ A 2007 study of the economic benefits to visitors from the Virginia Creeper Rail Trail estimated the annual benefit

⁷ Based on approximately 1.5 billion days of outdoor recreation by Californians at federally-managed facilities, the SPS, regional and local parks and the selected major activities (hunting, fishing, boating and golf on public courses) described in this report.

⁸ *Economic Values of Wilderness Recreation and Passive Use: What We Think We Know at the Beginning of the 21st Century*. John B. Loomis. USDA Forest Service Proceedings RMRS-P-15-VOL-2. 2000.

of the trail at 2.3 to 3.9 million dollars for the trail's 101,000 visitors (\$23 to \$39 dollars per visitor day).⁹

Relatively few studies have estimated the economic benefits to visitors from local parks. However, the 2000 study of the East Bay Regional Park system estimated the annual economic benefits for the 14 million annual visitors to that system at almost \$74 million. This represents a value per visitor day of \$5.27 in year 2000 dollars, or \$6.59 per visitor day in 2008 dollars. The benefit estimate per recreation day from the East Bay study is relatively similar to the average in our current study – reflecting the high percentage of California outdoor recreation activity that takes place in regional and local parks.

⁹“Estimating the economic value and impacts of recreational trails: a case study of the Virginia Creeper Rail Trail.” *Tourism Economics* 2007. J.M. Bowker; John C. Bergstrom; and Joshua Gill.

SECTION 4.

Literature Review

Introduction

This Literature Review for the California Outdoor Recreation Economic Study (the Study) was conducted by a team led by BBC Research & Consulting (BBC) on behalf of the California State Parks (CSP). The material in this section was developed prior to the actual development of the economic models and estimates described in other sections of this report. Any inconsistencies in the descriptions of study methodology and potential data sources between this section and other report sections reflect this chronology – and the reader should rely on the information in the other sections of the report in the event of any discrepancies.

The study has four overall objectives:

- Quantify the economic *impacts* of visitation to California State Parks;
- Quantify the economic *benefits* of visitation to California State Parks;
- Quantify the economic *impacts* of overall outdoor recreation in California; and
- Quantify the economic *benefits* of overall outdoor recreation in California.

The term “economic impacts” refers to the economic activity (e.g. sales, jobs and earnings) that directly and indirectly results from expenditures for outdoor recreation trips, supplies, services and equipment. This concept is also sometimes referred to as the “economic contribution.” The term “economic benefits” describes how much people value their own participation in recreation activities, over and above what they have to pay to participate. This concept can also be described in terms of “consumer’s surplus,” or the amount that individuals would be willing to pay to be able to participate in particular recreation activities (or how much they would be willing to accept to forego participation in those activities).

The purpose of this Literature Review was to review existing literature relevant to this study, identify and examine potential data sources, and develop preliminary methodological frameworks for the four study components. The remainder of this appendix is divided into the following six sections:

- Recent surveys and databases developed by CSP
- Previous state and national studies of outdoor recreation spanning multiple activities
- Location-specific literature and data
- Activity-specific literature and data
- Potential data sources for equipment expenditures
- Preliminary recommendations regarding study methodology

The literature regarding outdoor recreation participation, economic impacts and economic benefits is vast, encompassing economic impact studies of specific events in individual areas, industry studies,

journal articles, broad assessments contained in the statewide comprehensive outdoor recreation plans and other types of information. This review is by no means exhaustive, but instead attempts to both describe the various types of studies found in the literature and focus on the information most useful to subsequent phases of this effort. Additional literature and further data sources were identified as the study proceeded into the more specific, quantitative tasks of model development and calibration.

Recent Surveys and Databases Developed by CSP

The most fundamental data for this study have been developed and provided by CSP. From December 2007 through February 2009, CSP conducted a survey of visitors to State Parks throughout California. In 2007, CSP conducted a survey of the overall California population regarding their participation in outdoor recreation. CSP also produces an annual Statistical Report that compiles visitation data, and other characteristics, for each unit in the State Park System. The following text describes each of these three data sources, focusing on their application to this study.

State Park Visitor Survey (SPVS). CSP conducted intercept surveys with 9,637 respondents at 26 State Park units throughout California. Surveyed facilities included nine State Parks, four State Beaches, four State Historical Parks, six State Recreation Areas and two State Vehicular Recreation Areas. The survey collected a variety of information from respondents including the specific activities participated in during their visit and trip expenditures.

The results of the SPVS (along with visitation data and other characteristics for non-surveyed park units discussed later) will be a primary input for estimating the economic impacts of outdoor recreation at California State Parks. BBC plans to use respondent expenditure data, combined with information on characteristics of the surveyed parks, to develop transferrable expenditure profiles for various types of state park units and different categories of visitors. Our preliminary analyses of the data from the SPVS indicate that the critical factors driving variations in visitor expenditures include the type of park unit (i.e. State Park, State Beach, etc.); the category of visitor (day user or camper) and the population density surrounding the park. The latter is an indicator of whether most of the visitors to the park are destination visitors (for parks with relatively small surrounding populations) or local visitors (for parks located in or near larger cities and metropolitan areas).

The State Park Visitor Survey does not provide information on the benefits that park visitors received from their visits to the parks (or from their participation in specific activities while at the parks). This information will need to be developed from other sources.

Survey of Public Opinions and Attitudes (SPOA). The SPOA surveys covered a wide variety of topics related to outdoor recreation. CSP contractors conducted 2,780 initial, relatively short interviews with adult Californians via telephone and on-line panels. 1,227 of the participants in these interviews subsequently completed more detailed mail surveys.

For purposes of this study, the most important information contained in the SPOA database includes data concerning:

- How often Californians participate in a wide variety of individual recreation activities,
- How Californians' total recreation activity is divided amongst several types of settings (roughly approximating local parks, state and national parks, historical settings and

undeveloped natural settings such as U.S. Forest Service (USFS) or Bureau of Land Management (BLM) lands), and

- How much Californians would be willing to pay to participate in each of their three favorite activities.

While the SPOA data are an invaluable start for portions of this study, this survey and dataset have several limitations for our purposes. There are no expenditure data in the SPOA data set. Based on the distribution of the responses, it appears the top category in the willingness to pay questions (\$16-\$20) may have been set too low to fully capture the value that many participants receive from some of the most highly valued activities – such as skiing, golf and RV camping. Beyond the general information on recreation settings discussed earlier (and a further line of inquiry regarding travel time to the area where the respondent most often recreates), the SPOA does not tell us specifically where the respondents recreated. This presents challenges given our objective of analyzing statewide recreation by region. And, finally, it is not possible to cross-tabulate the types of activities the respondents participated in with the distribution of their recreation days by types of recreation settings.

California State Park System Statistical Report (Statistical Report). The Statistical Report is compiled and published every year, on a fiscal-year basis. The report identifies each of the facilities in the State Park System, the classification of the park (park type), and provides a wealth of data concerning each park’s characteristics and amenities. Of equal import for this study, the Statistical Report also provides annual visitation data for each park unit (except for some relatively minor facilities), broken down by day users and campers. Finally, the statistical report also summarizes the revenues and costs associated with park operations. Coupled with the SPVS (described earlier), the Statistical Report is a primary input for the State Parks economic impact and economic benefit analyses.

Summary Regarding CSP Surveys and Databases. The SPVS, SPOA and Statistical Report provide the foundational data for this study. Analysis of the SPVS, coupled with additional data from the Statistical Report, will provide most of the inputs needed to model the economic impacts of visitation to California State Parks. The SPVS does not estimate the economic benefits that park visitors receive from their visits, but it does provide a solid basis for estimating the distribution of activities at state parks for that purpose. The SPOA provides the most comprehensive information on how (and how often) Californians participate in outdoor recreation activities. The SPOA provides only limited information on where that participation takes place and provides no data on recreation-related expenditures.

Previous Statewide and National Studies of Outdoor Recreation Spanning Multiple Activities

As will become clear later in this report, most studies of the economic benefits — and particularly the economic impacts — of outdoor recreation have focused on either specific locations (e.g. individual parks or sets of parks such as the National Park system) or specific activities (such as golf, bicycling or camping). Such focused studies are simpler than the evaluation of multiple outdoor activities in a wide range of locations being undertaken in our study, and avoid many of the potential issues such as potential double-counting, joint participation in multiple activities in the same day, and other

potential concerns. Consequently, a review of the relatively few studies that have endeavored to examine the impacts or benefits of multiple types of recreation at varied locations is useful for our purposes.

Outdoor Industry Foundation studies. The most ambitious effort to date to quantify the economic impacts of outdoor recreation is the study conducted for the Outdoor Industry Foundation (OIF) by Southwick Associates in 2006. Based primarily¹ on surveys of about 13,900 individuals across the U.S.², the OIF study estimated the participation and expenditures for five categories of recreation activities. The categories included:

- Bicycle-based recreation;
- Camp-based recreation;
- Paddle-based recreation;
- Snow-based recreation; and
- Trail-based recreation.

The study also estimated the economic impacts and tax revenues generated by outdoor recreation using the IMPLAN model. The study concluded that outdoor recreation contributed an annual total of \$730 billion to the U.S. economy, supported nearly 6.5 million jobs, and generated \$88 billion in state and national tax revenue. For California alone, the economic contribution was estimated at \$46 billion and 408,000 jobs and \$3.1 billion in annual state tax revenue.

The scope of the 2006 OIF study differs somewhat from the study we are undertaking. Our study will include a number of recreation activities that were not part of the five groups studied by OIF (such as tennis, golf, walking, beach activities and motorized boating, among others). Some OIF estimated participation rates in California seem relatively low compared to estimated participation rates based on the 2007 SPOA. Nonetheless, the OIF study provides a valuable benchmark in terms of participation rates, expenditures and economic impacts for various activities, as well as an inevitable source of future comparisons between the two studies.

OIF has not produced a subsequent update to the 2006 study, but continues to produce updated reports on recreation participation. The latest report, for 2009, includes estimated participation in 40 different outdoor activities and assesses differences in participation rates by region, age, ethnicity and other population characteristics. Overall, Americans are estimated to average between 80 and 90 “outings” per outdoor participant (essentially equivalent to 80 to 90 days of outdoor activities per year).

Economic Impact of Sports and Recreation Activities in Florida. Prepared by the Washington Economics Group for the Florida Sports Foundation in 2005, this is an unusual statewide study of the economic impacts of sports and recreation. Despite its title, however, the study

¹ The OIF study also incorporated data from the National Survey of Fishing, Hunting and Wildlife-associated Recreation, discussed later in this report.

² 13,900 was the total number of U.S. survey participants. About 5,150 indicated that they participated in one or more of the sports categories under study and provided expenditure data for the study. Approximately 650 respondents were from California (about 5 percent of the total).

focuses on only nine elements of sports and recreation, including several elements which are outside the scope of our current study. Elements included in the Florida study included:

- Retail spending on sports and recreation equipment and apparel;
- Local government spending on parks and recreation;
- Fishing, hunting and wildlife-associated recreation;
- Recreational golf and golf courses;
- Professional sports teams;
- Pari-mutuel sports;
- Recreational horse ownership;
- Sports commission sponsored events; and
- Professional golf and tennis events.

This study has an economic development focus and, typical of the literature in that genre, focuses on concepts such as industry clusters and the relationship between sports and recreation and Florida's overall economic development plan. The study derives estimated direct economic impacts for each of the nine elements from a variety of existing sources and then employs the IMPLAN model to estimate secondary economic impacts, tax benefits and other metrics. Like the OIF study, the Florida study includes data from the National Survey of Fishing, Hunting and Wildlife-associated Recreation. Although the overall Florida study is not directly comparable to our study, it does provide an example approach for estimating some relevant categories of direct economic effects (sporting goods sales, golf, horse ownership, etc.).

Economic Impact of the Department of the Interior's Programs and Activities (DOI Study). This 2009 study estimated the economic impact generated by DOI's programs and activities — including, for example, the impacts from mineral, timber and range resource management as well as from recreation use. In terms of recreation, the DOI Study estimated payroll and visitor expenditure impacts related to recreation occurring on lands associated with the National Park Service, the Bureau of Land Management, the Fish and Wildlife Service and the Bureau of Reclamation. DOI estimated the impacts related to each agency at both national and state-level. In general, DOI developed estimates for visitor expenditures using existing data on visitation and per visitor expenditures. DOI used the IMPLAN model to estimate secondary impacts.

Economic Activity Attributed to Outdoor Recreation (Colorado SCORP). The need to better understand and promote the economic benefits and contribution of outdoor recreation is a common theme in the statewide comprehensive outdoor recreation plans (SCORPs) prepared by states across the nation. Colorado's SCORP takes this theme further than most and briefly discusses a series of national studies on various recreation elements including: the OIF study; the National Survey of Fishing, Hunting and Wildlife-associated Recreation; data from the National Marine Manufacturers Association; an analysis by GOLF 20/20; a study by the American Horse Council Federation; and studies by the American Recreation Coalition and the American Council of Snowmobile Associations related to off-highway vehicle recreation. The Colorado SCORP then develops a rough estimate that the annual activity generated by outdoor recreation in Colorado is at least \$10 to \$15 billion based on the Colorado-specific information from some of the national studies and several Colorado-specific activity studies (including bicycling, climbing and whitewater rafting).

The SCORP admits that this estimate is far from comprehensive and does not include such activities as team sports, golf, competitive events, picnicking, boating and parasailing.

National Survey of Fishing, Hunting and Wildlife-associated Recreation (FHWR Survey). Since 1955, the U.S. Fish and Wildlife Service (USFWS) has sponsored a national study every five years regarding participation and expenditures for hunting, fishing and watching wildlife. Now conducted by the Census Bureau, the latest study in 2006 began with a survey of 85,000 U.S. households to determine participation, which was followed up with a survey of about 33,000 participants to gather greater detail on activities and expenditures. Like other products from the Census Bureau, the FHWR Survey is statistically very robust and provides a wealth of detail on these types of recreation activities.

Microdata (individual records stripped of identifying information) from the FHWR Survey are available and allow for examination of these activities and expenditures at the state level, though information is not available for sub-state regions. For these types of outdoor activities, the FHWR is the definitive source of information.

The State of the Great Outdoors: America's Parks, Public Lands, and Recreation Resources. Completed in 2009, this national study was conducted by Resources for the Future (RFF) in conjunction with the Outdoor Resources Review Group. The study provided an assessment of the national supply and demand for recreational resources and evaluates trends in park funding. While the study did not directly address the economic impacts or economic benefits of outdoor recreation, it included a comprehensive evaluation of trends in recreation participation and visitation at various types of federal- and state-managed parks and public lands. The RFF study comments on the need for more standardized and comprehensive data regarding local parks and generally uses many of the same data sources described elsewhere in this literature review.

Outdoor Recreation Use Values on National Forests and Other Public Lands. Updated in 2005, this report by Dr. John Loomis (a member of our study team) for the USFS summarizes contingent valuation and travel cost studies from 1967 through 2003 to provide estimates of the daily benefits (net willingness to pay or consumer surplus) that recreation participants derive from 30 different types of activities on public lands. This report encompasses 1,239 studies and provides means, standard errors, and minimum and maximum estimates of the daily benefit for each activity. Estimates are provided by census region as well as for the U.S. as a whole (and results tables also indicate the number of studies contributing to each estimate). Of potentially equal value, the study is accompanied by a database that provides the information from each individual study, allowing researchers to further examine potential variations in use values among different types of sites and other factors.

This report and dataset are the leading source of information on the benefits associated with various outdoor recreation activities and will be used, in conjunction with the results of the willingness-to-pay questions from the SPOA, in the benefits-related components of our study.

U.S. Army Corps of Engineers, Unit Day Values for Recreation. The U.S. Army Corps of Engineers (Corps) maintains a set of Unit Day Values (UDV) for use in estimating the recreation benefits with different types of recreation activities and different qualities of facilities. These UDV are an alternative to measures of consumer surplus based on contingent valuation or travel cost studies,

such as those included in the report by Dr. Loomis described above. The UDV are updated each year to capture the effects of inflation. While the sources and basis for the UDV are not as clear as the daily benefits estimates developed by Dr. Loomis from specific studies, the UDV system is designed to allow the user to adjust the estimated values for the quality of the recreation setting. This could be a useful feature in estimating daily use values activities conducted in local parks if the literature contained in the Loomis meta-evaluation does not provide sufficiently comparable examples.

Summary regarding previous statewide and national studies spanning multiple activities. Relative to location-specific and activity-specific studies, the type of study we are conducting in California is relatively rare. The most comparable previous study is probably the OIF 2006 study which will provide a point of comparison to the results of our study. The FHWR Survey, however, is a valuable resource for hunting-, fishing-, and watchable wildlife-related activities and its data can be re-analyzed to develop California-specific information. The meta-analysis of outdoor recreation use values, combined with participation data from the SPOA and SPVS, will provide key inputs for estimating the economic benefits of visitation to California State Parks and overall outdoor recreation participation in California. The UDVs developed by the Corps could provide an alternative to the recreation use values from the Loomis study, if needed.

Destination-based (Location-specific) Literature and Data

Much of the literature regarding the economic impacts and economic benefits of recreation focuses on activity and spending at specific locations or types of locations (such as state or national parks). A number of databases are also available that document visitation, and in some cases expenditures, for some of the most prominent types of recreation destinations.

In general, the facilities that are most often studied, and that have the most complete data, are larger parks where controlled access makes it possible to count (and occasionally survey) visitors. Very little data is available regarding visitation, activities or trip expenditures for local parks, although a few studies have endeavored to characterize the economic impacts of such facilities.

Data sources for destination-based recreation. The following discussion begins with descriptions of existing data sources for destination-based recreation at locations other than California State Parks (which were covered in the earlier section on CSP surveys and databases). The data discussion is followed by a brief description of some of the prior studies focused on specific locations or types of locations.

National Park Service (NPS) facilities data. Similar to the California State Parks system, the National Park system consists of various types of units such as National Parks, National Monuments, National Historic Sites, and National Recreation Areas, among others. California is home to 28 National Park units, including:

- Eight National Parks;
- Six National Monuments;
- Five National Historical Sites;
- Three National Recreation Areas;
- Four National Historic Trails;

- One National Seashore; and
- One National Preserve.

The NPS estimates monthly visitation for almost all units broken down by visit type (e.g., recreation visits, tent campers, RV campers, etc.).³ The National Park Service Public Use Statistics Office (PUS) makes these data available on the NPS website.⁴ Each unit documents the method used to count visitors and notes circumstances that may have led to atypical or inaccurate counts.

Each year, the NPS Visitor Services Project (VSP), managed by the University of Idaho Park Studies Unit (UI PSU), conducts in-depth visitor surveys at different park units across the country. The number of parks surveyed annually varies, but typically ranges from 10 to 15 surveys. The surveys gather information on visitor attitudes and opinions, activities planned during their visit and group characteristics. Some surveys collect expenditure data.

The NPS Money Generation Model (MGM) uses visitation and expenditure data from these two sources to estimate “the impacts of NPS visitor spending on the local economy” (Stynes D., et. al. 2000).⁵ The NPS originally funded the development of this model in the mid-1990s. A revised model, called MGM2, was developed by a team at Michigan State University (MSU) led by Dr. Daniel Stynes. This team completed a detailed study of each park surveyed that contains expenditure data — an example of one such study is discussed later. The model is also used to develop more accurate and detailed visitation estimates and detailed expenditure profiles for each park unit across the country. This model and the supporting data will be used in this study to estimate the economic contribution of outdoor recreation at California National Parks.

U.S. Forest Service lands data. The USFS National Visitor Use Monitoring (NVUM) program “provides reliable information about recreation visitors to national forest system managed lands at the national, regional, and forest level” (USFS, 2008).⁶ The NVUM program conducts annual surveys at forest units. The surveys are similar to those conducted by the NPS. Between 2000 and 2003 each forest conducted a survey. The USFS conducted another round of surveys between 2004 and 2009. Available on the USFS website are forest-level visitation estimates for 2006.

In 2006, Dr. Stynes, along with Dr. Eric White, used data from these surveys to develop general expenditure profiles by activity (e.g., downhill skiing, OHV-use), spending category (e.g., lodging, groceries) and trip type (e.g., day trips, overnight trips) for forest visitors (Stynes D. and E. White, 2006).⁷ During the development of these profiles, Stynes and White found that there were no significant regional differences in visitor spending, and therefore only develop forest-wide expenditure profiles.

NVUM visitation data and the expenditure profiles will be used in this study to estimate the economic contribution of outdoor recreation at California’s national forest lands.

³ Visitation is not reported for any NHT units or Rosie the Riveter WWII Home Front NHP.

⁴ See <http://www.nature.nps.gov/stats/>.

⁵ Stynes D., et al. 2000. Estimating National Park Visitor Spending and Economic Impacts: The MGM2 Model.

⁶ USFS. 2008. National Visitor Use Monitoring Results, USDA Forest Service, National Summary Report.

⁷ Stynes, D. and E. White. 2006. Spending Profiles for National Forest Recreation Visitors by Activity.

Data for lands managed by the Bureau of Land Management. Each BLM Field Office tracks annual visitation by activity on BLM lands. These data are recorded in BLM's Recreation Management Information System (RMIS). Field Office recreation planners base these estimates on traffic and trail counters or on best judgment. The California BLM recreation planner provided these data for 2006 through 2008.

Compared to the NPS and USFS, the methodology for collecting visitation data on BLM lands is less systematic and likely to be less accurate. However, these visitation data will provide valuable information for this study.

Each BLM Field Office, as well as some management areas within a Field Office area, develops a Resource Management Plan (RMP). These plans typically contain visitation data, information on typical recreation activities and, in some cases, visitor expenditure information. The completion date varies widely between California RMPs. These data can supplement information available in RMIS.

U.S. Army Corps of Engineers reservoirs data. The Corps oversees 23 recreation areas in California. In 2006, the Corps estimated the economic impact from recreation at Corp facilities. For each facility, the Corp reported the type of facilities, number of visitors by activity and estimated visitor spending within 30 miles of the area. This information is available on the Corps' website through the Value to the Nation program. The Corps also developed spending profiles by visitor type (e.g., boater, camper) and spending category (e.g., hotel, groceries) based on 1999/2000 National Visitor Survey. While these data are somewhat dated, it will be useful for estimating the economic contribution of outdoor recreation at Corps facilities.

National Wildlife Refuges (NWRs) data. The U.S. Fish and Wildlife Service (FWS) tracks visitation to NWRs and maintains the data in the Refuge Annual Performance Planning (RAPP) system. Furthermore, FWS' report *Banking on Nature 2006: The Economic Benefits to Local communities of National Wildlife Refuge Visitation* contains information related to visitor expenditures. Both data will be used in this study.

Sample studies of destination-specific recreation economics. The following are brief descriptions of a few of the studies that have been conducted regarding the economic impacts of specific parks and facilities. This is not a comprehensive list, but provides a sense of the scope of this literature. This discussion begins with federal and state parks facilities in California and concludes with a review of studies of local parks and facilities (including national studies and studies in other states). There have also been many studies of the economic benefits of recreation at specific locations. Since this literature is generally fully encompassed in the meta-study performed by Dr. Loomis for the USFS (discussed earlier), these types of studies are not reviewed here.

Economic Impacts of Visitor Spending on the Local Economy: Lava Beds National Monument. One of numerous economic impact studies of NPS facilities in California and other states conducted by Dr. Stynes' MSU team. As discussed previously, the MSU team is the primary consultant to the NPS regarding economic impacts of NPS facilities. This study, and others like it, provides a good example of how to use NPS visitor and expenditure data to estimate economic impacts. The study also provides a thorough discussion of key issues in this type of analysis. This type of study can be readily replicated for other NPS facilities in California using the visitation and expenditure data described earlier in this section.

Economic Significance of Recreational Uses of National Parks and Other Public Lands. A more generalized study by Dr. Stynes for a 2005 journal article. This piece provides a good discussion of economic impact analysis concepts and methods applied to national parks (or other recreation destinations). This study also provides selected data on visitor expenditures for a wide range of national parks and overall economic impact estimates for the NPS system as a whole. Finally, this study provides a detailed bibliography of potentially useful sources.

National Treasures as Economic Engines: The Economic Impact of Visitor Spending in California's National Parks. This 2003 study focused on the economic impacts of 10 national parks in California. Dr. Stynes was a contributor and the study uses the data and methods he helped develop for analyzing NPS facilities. This study may provide an interesting point of historical comparison with information that will be developed in our study.

Recreation Activity, Spending, and Associated Economic Impacts, R-18, Oroville Facilities Relicensing FERC Project No. 2100. Another regional economic impact study focused on a specific facility. This study was conducted by the California Department of Water Resources for purposes of relicensing with the Federal Energy Regulatory Commission. The study has a somewhat different feel from the Stynes work discussed previously and used the IMPLAN model at the zip code level to produce detailed local impact estimates.

The Impact on Local Economies of Spending by Visitors to California State Parks. This study, originally conducted in 1995 and updated in 2002, is the predecessor for one of the four components of our current study. The 1995 study was based on a survey of eight parks (compared to the 26 facilities contained in the 2007-2009 SPVS) and generalized results from the analysis of those parks to estimate statewide economic impacts from the state park system. Although the study used a different input-output model to estimate secondary economic effects than we anticipate using in our work, the 1995/2002 study and update will provide useful points of comparison to our results in terms of visitor activities, spending and economic impacts.

Quantifying Our Quality of Life. An Economic Analysis of the East Bay's Unique Environment. This report is a unique example of an economic impact (and economic benefits) study of one of California's regional park systems. The study includes a detailed economic assessment of the economic impacts and benefits of the regional park system, based on surveys conducted for that purpose. The study includes activity, expenditure and unit value (benefits) data and estimates. The report further discusses impacts on property values and other quality of life aspects. This study provides an important example of the impacts and benefits of local parks and will be useful in discussing these issues in general terms. The study's approach and results are unlikely to be replicable for other local or regional parks, however, in absence of visitation data.

Measuring the Economic Value of a City Park System. A generalized report by the Trust for Public Land on the benefits of local parks provides interesting case studies drawing upon available data and a lot of "best guess" assumptions. The report includes a chapter on each of the following topics: hedonic property values, tourism value (economic impact), direct use value (economic benefit), health value, community cohesion value, reducing cost of storm water management, and removing air pollution. The tourism value case study is Balboa Park in San Diego. This study is likely to be helpful in describing some of the non-quantifiable, but nonetheless important, benefits of local parks.

How Much Value Does the City of Sacramento Receive from Its Park and Recreation System?

Another report by the Trust for Public Land, this study is similar to the report described above but applies the framework specifically to Sacramento.

Summary regarding destination-based (location-specific) data sources and studies.

This category of information and existing studies provides some of the best available information on the economic aspects of outdoor recreation. There are solid data on visitation and expenditures for NPS facilities and there are published estimates for other types of federally-managed lands and facilities. Coupled with the state parks data that CSP provides (discussed earlier in this report), these data sources provide a good basis for estimating the economic impacts and benefits of recreation on many types of public lands. Further, because these data are location-specific, this information is very suitable to our study's additional objective of developing economic estimates at the regional level within California.

There are two primary limitations to the destination-based data and literature. The first is the lack of available data on visitation (and expenditures) for local and regional parks. We believe, however, that generalized estimates of the proportion of recreation that occurs at these types of parks can be developed from some of the information contained in the SPOA and further assessed based on comparisons of total recreation activity from the SPOA with destination-based activity totals from the various sources just described. It may also be possible to transfer some information on expenditures and economic benefits by activity from other data sources for application to local park visitation (including some of the surveyed parks in the SPVS that are most akin to local or regional parks and some of the prior economic benefits studies in the Loomis meta-analysis for the Forest Service).

The second limitation concerns outdoor recreation activities that do not generally take place in a destination-based setting. Some of the most common outdoor recreation activities for Californians usually take place in either local parks or on the streets and trails of local communities. Examples include walking, bicycling, using playground equipment and team sports. Some of these activities, and others, are discussed further in the following section.

Activity-specific Literature and Data

The second primary category of recreation-related studies and data focuses on specific recreation activities. The following discussion focuses on this type of information and spans a variety of common outdoor recreational activities.

Bicycling studies. A number of studies in various parts of the country have focused on the economic impacts of bicycling. Most of these focus primarily on bicycling-related tourism.

Bicycling and Walking in Colorado (2000). The Colorado Department of Transportation commissioned this study, in part, to estimate the economic impact of bicycling in Colorado. The results are based on phone and mail surveys of bicycle manufacturers, retail bicycle shops and ski resort operators in Colorado as well as a mail survey of 6,000 Colorado households. The report provides expenditure and participation estimates for a variety of activities including: bicycling at Colorado ski resorts, bicycle-related vacation spending by Colorado residents, bike tours in Colorado and bike races and events in Colorado. The study also estimated the economic impact of bicycle-related manufacturing and retail sales of bicycles and accessories in Colorado.

The Economic Impacts of Bicycle Facilities: A Case Study of the Northern Outer Banks (2004).

This study investigated the economic impact of bicycling in the northern Outer Banks. Using surveys and bicycle traffic counts, the study gathered data on the annual total visitation to the area, the proportion of these tourists that were influenced to visit by bicycling and the average amount spent per day by each visitor. Survey results indicated that, on average, cyclists visiting the area spent between \$150 and \$175, with accommodations accounting for the largest share of expenditures.

Sea to Sky Mountain Biking Economic Impact Study (2007). This report examines a region of British Columbia that has renowned mountain biking trails. A survey was administered by the intercept method to over 1,000 mountain bikers between June and September of 2006. There were four areas in which bicyclists were intercepted: the North Shore, Squamish, Whistler Valley and Whistler Bike Park. Estimated expenditures per visitor per day ranged from \$39 to \$99 for day visitors and \$48 to \$133 for overnight visitors.

Valuing Bicycling Economic and Health Impacts in Wisconsin (2010). This report examined the health benefits as well as economic impacts of bicycle riding in Wisconsin. The economic impacts were determined using the number of bicycle person-days and the average expenditure of those bicyclists. The report identifies the average daily expenditure of residents and non-residents. The data sources used in this report for determining the number of bicycle-person days included:

- ***National Household Transportation Survey (2002):*** The survey gathers trip-related data including mode of transportation, duration, distance and purpose of trip. This study utilized the number of bicycle trips for social/recreational purposes by Wisconsin residents. Given that the average trip length was less than 5 miles, most of these individuals did not contribute to economic activity and this figure was used to estimate the upper bound of economic activity.
- ***Tourism Studies:*** Using two previous studies, the report estimated that there are 6 million overnight visitors related to recreational bicycling each year in Wisconsin. This estimate does not include day-trippers.

Participation and average daily expenditures are summarized across four different types of bicycling activities (roadways, trails, single day events/tours and multi-day tours).

Boating studies. The following narrative describes two studies of boating in California.

Non-Motorized Boating in California (2009). Commissioned by the California Department of Boating and Waterways (DBW), this study examined the type and quantity of non-motorized boating in California, the annual economic impacts from these boaters and recommendations for future facilities to accommodate the boating market. Non-motorized boats include inflatable boats (rafts), kayaks, canoes, row boats, sailboards and kite boards, and small sailboats. The report provides information on boat ownership, participation, and estimated total direct and induced economic impacts by region. The report also discusses the recreational benefits (consumer surplus) that boating participants receive per day of participation in non-motorized boating activity.

Report appendices also describe expenditure data acquired through a commercial and institutional survey effort from 2006. This expenditure data is broken down by region and activity type (rental, instruction or guided trips).

Economic Impact of Boating in California (1997). This study for the DBW reported the total direct, indirect and induced impacts of the boating industry in the state. The industry is defined as all businesses, organization and agencies engaged in boat operation or providing boating-related goods or services in economically significant quantities. Direct economic impact estimates were primarily based on information from a variety of published sources such as economic census reports, data from the California Board of Equalization and boating directories. The report also provides estimated expenditures per boating participant per day.

Fishing Studies. In addition to the FHWR Survey discussed earlier, the team reviewed a number of studies regarding the economic impacts and benefits of fishing. Three studies focusing on recreational fishing in California and the Pacific region are discussed below.

Understanding the Potential Economic Impact of Marine Recreational Fishing: California (2006). This paper examines and summarizes the literature regarding economic impacts and economic benefits of recreational fishing. For California-specific angler expenses, the paper refers to a 2001 publication from the National Oceanic and Atmospheric Administration (NOAA) entitled *Marine Angler Expenditures in the Pacific Coast Region*, discussed later in this section. Expenditures per day by recreational fishing participants using private boats are estimated to range from \$21 for resident shore anglers in Southern California to \$251 per day for non-resident anglers in Southern California using rented boats. Anglers using chartered boat services are estimated to spend between \$94 per day (residents of Southern California) and \$564 per day (non-residents fishing in Southern California). Additional studies from the 1980s describing trip and day expenditures for residents and non-residents are also discussed.

Marine Angler Expenditures in the Pacific Coast Region (2000). This report summarizes the results of a 2000 economic expenditure survey and provides state-level estimates of direct sales resulting from anglers' expenditures in the Pacific Coast Region. There were nearly 40,000 regional respondents who participated in the survey effort. The survey data primarily focuses on salt-water recreational fishing. This paper provides estimates of days fished, fishing participants and detailed expenditure data by residents and non-residents for Southern California, Northern California and statewide.

The Value of Recreational Fishing in California (2008). Published by California Trout, Inc., this report addresses expenditures related to freshwater fishing and the corresponding direct and indirect economic impacts. Expenditure data for California is taken from the FHWR Survey directed by the USFWS. Aggregate regional expenditure data is provided for regions within the state including Northern (Klamath River Basin and Sacramento River) and Central California (Sacramento-San Joaquin Valley).

Golf Studies. In addition to data available from golf associations, discussed later in this report, we examined three studies focused on economic aspects of golf.

The California Golf Economy (2008). This report breaks the golf industry into two sectors: the core industry (golf course capital investment, golf supplies, golf facility operations and media, tournaments, associations, and charitable events) and the enabled industry (hospitality/tourism and real estate). The analysis is mostly limited to statewide direct economic impacts of these two sectors of the industry. Results from the study indicated that the average expenditure per person per trip was \$416 in 2006.

San Diego's Golf Economy (2010). This report utilizes data from 2008 to estimate the total direct and induced economic impact of golfing in San Diego. Estimated visitor spending is based on a survey conducted by the San Diego Convention and Visitor's Bureau (SDCVB). This survey found that among all visitors to San Diego in 2008, an estimated 1.4 million were in the area to play golf and 96 percent of these visitors had planned an overnight stay and spent an average of \$816 (median stay of 4 nights) — this survey can be purchased.

Economic Dimensions of the Florida Golf Course Industry (2002). Economic impacts discussed in this study were estimated using golf industry survey data from 2000 in conjunction with previously published data and regional economic models. Detailed expenditure profiles were developed using data from a 1999 study by the National Golf Foundation (NGF).

Other activity-specific studies. The study team also examined individual studies for several other activities, including:

- Off-highway vehicles;
- Paddling;
- Snowmobiling;
- Surfing; and
- Tennis.

The following brief write-ups describe these studies.

Economic Contribution of Off-Highway Vehicle Recreation in Colorado (2009). This report was commissioned by the Colorado Off-Highway Vehicle (COHV) Coalition. For purposes of this report, OHVs include ATVs, dirt bikes, snowmobiles and 4-wheel drive vehicles. This study updated expenditure profiles to 2007 dollars based on estimates developed in 2001. The original 2001 expenditure profiles were taken from a study and survey conducted by Hazen and Sawyer. The survey was completed by households and collected information on where and when motorized enthusiasts utilize their vehicles for recreation, average expenditures associated with recreational trips, and annual expenditures associated with operating and maintaining vehicles. Detailed expenditure profiles are provided for day and overnight trips taken by residents and non-residents.

Economic Impact Assessment of Paddler Recreation in the Adirondacks (2007). Using surveys completed by 552 paddlers recreating on the Northern Forest Canoe Trail waterways, this report examines the economic impact of recreational paddling in the region. Among all survey participants, the average paddler group spent \$215 per trip. Non-local groups spent between \$414 and \$498 per trip (4-day trip average).

Economic and Social Assessment of Snowmobiling in Utah (2001). This report examines resident snowmobilers through a survey distributed using snowmobile registration data in the Utah. Some non-resident registrants were surveyed; however, the information they provided was not included in the analysis. The report provides average trip expenditures for resident snowmobilers by category of expenditure.

A Socioeconomic Study of Surfers at Trestles Beach (2005). This study used an internet-based survey instrument to characterize the demographics, visitation patterns and expenditures of surfers who visited Trestles Beach in San Clemente, CA. The study shows that surfers are demographically similar to beach users, but have distinct visitation patterns. Surfers are more avid than other beachgoers and use the beach earlier in the day. Surfers make local expenditures that are similar to other beachgoers and extend the hours of tourism business in the local community. A counterintuitive finding from this study was that resident surfers of San Clemente have higher average per person per trip expenditures (\$58.72) than surfers from outside San Clemente (\$37.58).

The Tennis Market Place 2008 and 2009 Summaries. These previews of studies from the Tennis Industry Association (TIA) provide information on participation rates, wholesale racquet shipments, wholesale ball shipments and where racquets are purchased. The study only provides data at the national level. The entire reports are available for purchase. The TIA also provides a breakdown of types of courts and facilities throughout the United States including state-specific data that can be download from TIA's website. <http://www.tennisindustry.org/Facilities/>.

Understanding the Potential Economic Impact of SCUBA Diving and Snorkeling: California (2006). This literature review and meta-analysis provides participation, daily expenditure and daily benefit estimates for diving in California (and elsewhere) from various sources.

Campers in California Travel Patterns and Economic Impacts (2000). This study, prepared on behalf of the California Roundtable on Recreation, Parks and Tourism, provides benchmark information on the economic contribution of camping. The study includes data on the demographics of camping parties, camping activity levels and expenditure profiles for various types of camping. Regional data on camping expenditures and the number of developed campsites is also provided. The study emphasizes the significance of private campgrounds, finding that about 90,000 of approximately 150,000 developed campsites in California were on private land.

Some of this study's findings also provide an indication of the potential "joint production" challenge of attempting to aggregate recreation impacts by adding up results from activity-based studies. Survey results summarized in the study indicate that most campers also participate in walking or day hiking while on their camping trips and large proportions are also involved in other activities such as picnicking, photography, swimming, bike riding and fishing.

Summary regarding activity-specific data sources and studies. After the destination-based (location-specific) studies, activity-based evaluations are the second most common category of reports regarding the economic aspects of outdoor recreation. The activity-based literature provides California-specific studies, covering an array of activities, that may offer information (such as expenditure profiles or daily benefit estimates) that could be transferred for use in this study.

Some of the challenges in using the activity-based literature and data for our study include “joint production” — activities that occur together and that could be double-counted if results from studies are combined — and overlap with the destination-specific studies and data described earlier. For example, camping, boating and other activities covered in the activity-specific literature are also partly contained in the data for National Parks, State Parks and other facilities. For the most part, information from the activity-based literature is also provided on a statewide basis, without the regional breakdowns that would be useful for our study. Despite these limitations, activity-specific data from prior studies and other data sources will need to be used in this study, particularly for activities that occur primarily outside of recreational facilities managed by state and federal agencies. This will require additional analyses and assumptions to apportion economic activity to regions and to eliminate, or at least minimize, potential double-counting issues.

In general, the activity-specific literature does a better job of capturing equipment-related expenditures (and corresponding economic activity) than the destination-specific studies and data discussed previously. However, there are many outdoor recreation activities that have not been documented in specific studies. Additional potential sources of information for other recreation activities, and for overall recreation supply and equipment expenditures, are discussed in the following section of this report.

Other Potential Sources of Data for Recreational Equipment and Supply Expenditures and Economic Information on Additional Recreational Activities

In contrast to the “bottom-up” approach common in the destination-based and activity-specific literature (in which expenditure profiles are applied to estimates of participation levels), a number of more “top-down” sources can potentially provide additional information for this study. Such sources include aggregate economic data on recreation-related sectors, data from the Bureau of Labor Statistics Consumer Expenditure Surveys and information from recreation-related trade associations. The next section of this report describes these data sources and their potential relevance to this study.

IMPLAN data files and County Business Patterns data. Later in this study, we intend to use the IMPLAN regional input-output economic modeling system and data files to estimate the secondary economic impacts that occur in California (and each of its regions) from trip-related and equipment and supply expenditures for recreational activities. Many of the destination-based and activity-specific studies described earlier in this report have also relied on the IMPLAN model for this purpose (including the OIF studies, the various NPS studies and many others).

Apart from its capabilities in performing economic impact analysis, IMPLAN also provides a rich source of economic data at the county level. IMPLAN data files provide information on total output (generally equivalent to sales or retail margins), employment, earnings and other economic metrics for more than 400 specific sectors of the economy at the county level. Counties can be readily aggregated into regions using the IMPLAN software. Among the IMPLAN sectors that are potentially relevant for our purposes in this particular application are:

- Sector 18: Hunting and trapping;
- Sector 93: Footwear manufacturing;
- Sector 282: Travel trailer and camper manufacturing;

- Sector 291: Boat building;
- Sector 292: Motorcycle, bicycle and parts manufacturing;
- Sector 311: Sporting and athletic goods manufacturing;
- Sector 320: Retail – motor vehicle and parts;
- Sector 328: Retail – sporting goods, hobby, book and music; and
- Sector 410: Other amusement and recreation industries.

Clearly, some of these sectors include both recreation and non-recreation related components. Baseline data for the IMPLAN sectors can often be disaggregated (at least on an approximate basis) based upon U.S. Department of Commerce County Business Patterns data for the NAICS⁸ codes that comprise the sectors. For example, one of the components of IMPLAN Sector 320 is NAICS code 441210 Recreational Vehicle Dealers. NAICS code 451110 Sporting Goods Stores is a component of IMPLAN Sector 328. NAICS 71392 Skiing Facilities and NAICS 71393 Marinas are included in IMPLAN Sector 410.

Bureau of Labor Statistics Consumer Expenditure Survey (CES) microdata. The CES provides data and reports best known for their applications in estimating inflation and comparing the cost of living in various parts of the country. However, the microdata (individual responses) from the CES are publicly available (for \$125) and can potentially be analyzed to develop much more detailed estimates of consumer spending for particular types of items. Among the expenditure categories itemized in the CES are:

- Unpowered boats, trailers;
- Powered sports vehicles;
- General sport/exercise equipment;
- Bicycles;
- Camping equipment;
- Hunting, fishing equipment;
- Winter sport equipment;
- Water sport equipment;
- Playground equipment;
- Fees for participant sports;
- Fees for recreational lessons; and
- Camp fees.

The microdata also contain state identifiers. Although analyses based on respondents from a single state are often problematic due to sample size issues, California’s large population suggests it may be possible to estimate California-specific average expenditures for at least some categories of recreational equipment and supplies. There are two components to the CES data - an interview-based component

⁸ North American Industry Classification System, the standard coding system for U.S. industries and the successor to the old Standard Industrial Code (SIC) system.

and a diary-based component. The 2008 CES data include 3,255 California observations for the interview-based expenditures and 1,318 California observations for the diary-based expenditures.⁹

Data from associations, organizations and foundations. There are numerous associations, organizations and foundations that advocate for specific sporting industries. Many of these groups compile reports to address the economic impact of their respective sports and activities, which are typically available for purchase. The following is a list of some of these reports that could be relevant for this study.

National Marine Manufacturers Association (NMMA) - Statistical Abstract 2009 (\$950). This collection of data could help in analyzing the economic impact for boating in California using statewide boat registrations, sales by type of boat, trailer and accessory retail sales as well as national average trip expenditures. <http://www.nmma.org/facts/boatingstats/2009/>

National Golf Foundation (NGF). Membership (\$425) to the NGF provides free access to Golf Participation in the U.S. 2003 (details the demographics of golfers by state) and Golf Travel in the United States 2009 (details the total number of golf travelers, the number of trips taken and the number of rounds played, and the number of days away while traveling). These two reports can be purchased without becoming a member for \$150 and \$250 respectively. A third report, Spending Report – Sizing the Golf Consumer Market Place (\$200 for members \$250 for non-members), provides average expenditure by golfers on playing fees, golf clubs, balls and soft goods. <http://www.ngf.org/cgi/researchreports.asp>

National Association of RV Parks & Campgrounds (ARVC) - 2008 National Operations and Economic Survey of RV Park and Campground Industry (\$295). This report is based on survey responses from 410 ARVC members. The results are reported by park size — it is not clear if information is available at the state level. Information available in the report includes campground/park characteristics and facilities, number of visitors, occupancy, fees and revenues and expenses. <http://www.arvc.org/economicSurvey.aspx>

American Horse Council (AHC) – 2005 The Economic Impact of the Horse Industry on the United States National & State Breakout Report (\$35 for California specific report, possible \$25 membership fee). This study compiles the number of horses by state and industry spending activity. The study is based on information from approximately 400,000 horse owners and other industry participants involved in all segments of the horse industry, including people involved in both the recreational and commercial activities. <https://www.horsecouncil.org/orders.php>

Snowsports Industries America (SIA) – 2010 Snow Sports Participation Study (\$425 non-member cost or free with a \$75 membership). The report provides information for six different snow sport disciplines including alpine skiing, snowboarding, Nordic, telemark, freestyle and snowshoeing. The report includes overall number of participants and frequency of participation, cross-over activities including 117 sports and leisure activities (e.g., 43% of snowboarders are also runners), geographic density (California is home to the most snow sports participants but Montana

⁹ Personal communication from Mark Vendemia, BLS, to Doug Jeavons, BBC Research & Consulting, June 1, 2010.

has the most participants per capita), demographic characteristic of participants, and more.
<http://www.snowsports.org/Retailers/Research/2010SIASnowSportsParticipationStudy/>

SIA Retail Market Intelligence Report 2009 (\$425). This report provides information on participation trends and sales of equipment, apparel, and accessories sold in the snow sports marketplace by snow sport type (i.e., alpine skiing, snowboarding, cross country skiing and telemark skiing). The report also provides summaries and partial data from studies conducted by the National Ski Area Association (NSAA) such as skier visits by region and state, and lift ticket and season pass prices. The NSAA studies are discussed below.
<http://www.snowsports.org/Consumers/SnowSportsMarketIntelligenceReport/>

Tennis Industry Association (TIA) – Tennis Marketplace 2009 (\$250). This report provides an overview from a tennis participation study, consumer report, specialty retail audit, retailer satisfaction and census reports. TIA also produces detailed reports for each of these topics.
<http://www.tennisindustry.org/Research/>

NSAA – Kottke National End of Season Survey (\$175). This annual report provides data on regional and national skier and snowboarder visits including information on day and overnight visitation. Skier visits are also provided at the state level (this data may be available in the SIA report).
<http://www.nsaa.org/nsaa/marketing/availableResearch.asp>

NSAA – Economic Analysis of United States Ski Area 2008/2009 season (\$400). This report provides financial information reported by region and ski area size. Selected topics covered in this report include ski area economic characteristics, expenditure patterns and revenue sources. California is part of the Pacific Coast Region that also includes Alaska, Oregon, Washington, Nevada and Arizona. <http://www.nsaa.org/nsaa/marketing/availableResearch.asp>

Sporting Goods Manufacturers Association (SGMA) – Manufacturers Sales by Category Report 2010 (\$40). This report provides the data on over 30 categories of sporting goods ranging from clothes like athletic footwear and apparel to equipment such as sticks and nets. The data is based shipments from manufacturers. It is not clear if this data is provided at the state level.
http://www.sgma.com/reports/267_MANUFACTURER-SALES-BY-CATEGORY-REPORT-2010---NEW-RELEASE%21%21

SGMA – State of the Industry Report 2010 (\$495). This annual report contains “individual sport editorials” that discuss participation rates, business and demographic trends, past sales and more. It is not clear if this data is provided at the state level.
http://www.sgma.com/reports/268_STATE-OF-THE-INDUSTRY-REPORT-2010---NEW-RELEASE%21%21

SGMA – participation studies (\$40 to \$140). Based on survey of 41,500 respondents, SGMA produces various reports on sports and fitness participation. Reports are available for overall participation; participation in a fitness activity; participation in an individual, team or racquet sport; participation in a water, winter or outdoor sport; and individual reports for 133 specific sports. It is not clear if this data is provided at the state level.
<http://www.sgma.com/reports/participation/>

National Sporting Goods Association (NSGA) – Sports Participation State-by-State 2009 (\$340).

The study estimates sports participation on a state-by-state basis using data from a survey of 20,000 U.S. households. It provides national and state data on total participation, frequency of participation (frequent, occasional and infrequent), total participation days and mean number of days. The study estimates these metrics for 39 activities.

<https://www.nsga.org/i4a/forms/form.cfm?id=27&pageid=3480&showTitle=1>

NSGA – Sporting Goods Market in 2010 (\$340). This report is based on a consumer study of 100,000 U.S. households and provides information on consumer purchases of sports equipment and footwear. Footwear sales information covers 25 styles of athletic and sport footwear. The report provides 2009 data on retail equipment sales and estimates 2010 sales for specific products in more than 20 sport categories. The report also provides information on place-of-purchase (e.g., internet). <https://www.nsga.org/i4a/forms/form.cfm?id=27&pageid=3480&showTitle=1>

Summary regarding other potential sources of data. Information on purchases of recreational supplies and equipment can be at least partially derived from top-down data sources. IMPLAN data files, combined with publicly available County Business Patterns data, is a possible approach for deriving some of these expenditures at the regional level within California. On a statewide basis, CES data may provide consistent estimates of overall expenditures for a variety of consumer expenditures on recreational goods.

Further detail on recreational equipment and supply expenditures, as well as trip expenditures in some cases, is also available from a variety of industry associations and organizations. These reports are generally costly, and are of unknown quality and specific relevance prior to purchase, so should probably be considered an option of last resort to fill important data gaps where necessary.

Preliminary Recommendations Regarding Study Methodology

The preceding portions of this section have provided a detailed description of the data sources and studies that could provide critical inputs to the various components of this study. The most challenging question in terms of study design, however, is how to combine this information to meet the four objectives described at the outset of this section (and the additional objective of providing regional estimates of the economic impacts and benefits of outdoor recreation within California). The remainder of this section describes methodological considerations and recommends proposed approaches.

Economic impacts of outdoor recreation. The methodological discussion begins with the question of economic impacts (the second and fourth of the objectives outlined at the beginning of this report). For a number of reasons, this is more challenging than quantifying the economic benefits. We begin by discussing some fundamental aspects of the economic impacts of recreation.

The quantifiable economic impacts of outdoor recreation in California primarily result from two types of expenditures: trip-related expenditures and equipment and supply-related expenditures. Most outdoor recreation studies have found that trip-related expenditures are the larger component of the economic impact from outdoor recreation (see Outdoor Industry Foundation studies as an example).

How much money people spend on recreation depends on three primary variables:

- What they do (activity type)
- Where they do it (location)
- How often they do it (frequency)

As shown in Figure 4-1, there is a complex relationship between activity types and locations. Many activities can be undertaken in a variety of different locations and many types of locations can host a wide variety of activities. Because of these overlaps, a clear methodological design is important to avoid double-counting expenditures and economic benefits.

The preceding observation suggests two alternative ways of analyzing the economic impacts of outdoor recreation – by type of activity or by location. The existing literature can be generally grouped into these two categories as well, and consists of either studies of the impacts of visitation at particular locations (e.g., national parks, state parks, regional parks) or the regional or statewide impacts of particular activities (e.g., hunting/fishing/watchable wildlife, camping, boating).

Figure 4-1.
Conceptual Matrix of Selected Outdoor Recreation Activities and Primary Locations where They Occur

Activities	Location		Destination-Based			
	Local Park	Other Local/Regional	State Parks	National Parks	Other Federal	Private (e.g. Resort)
Backpacking			X	X	X	
Beach Activities	X	X	X	X	X	X
Bicycling-paved	X	X		X		
Bicycling-unpaved		X	X		X	
Boating	X		X		X	
Camping			X	X	X	X
Fishing	X	X	X	X	X	X
Golf	X	X				X
Hiking		X	X	X	X	
Hunting					X	
Jogging	X	X				
OHV Use		X	X		X	
Paddle Sports			X	X	X	
Picnicking	X	X	X	X	X	
Playground	X	X				
Pleasure Driving			X	X	X	
Sailing	X	X	X	X	X	X
Skiing/Boarding					X	X
Snowmobiling			X		X	
Surfing	X	X	X	X	X	
Swimming	X	X	X	X	X	X
Team Sports	X	X				
Tennis	X	X				X
View Wildlife	X	X	X	X	X	
Walking	X	X				

Note: This matrix is simply designed to show the types of locations where the recreation activities occur most frequently. We recognize there are many exceptions to these categories and locations.

Considerations regarding a purely activity-based approach. This is the approach that was used in the OIF national study. The study relied on a survey of participation and expenditures for five broadly aggregated categories: bicycle-based recreation, camp-based recreation, paddle-based recreation, snow-based recreation and trail-based recreation. This

approach was also used in a State of Florida study, the FHWR Survey and study conducted for the USFWS and the study of the economic impacts of camping in California a number of years ago.

In theory, this approach would allow direct use of the participation information from the SPOA. However, there are several issues with a purely activity-based approach in the context of estimating overall economic impacts of recreation in California and its regions:

- There is a significant “joint production” problem in using the SPOA data in this fashion because many activities occur together. For example, camping and hiking often occur on the same trip, picnicking occurs in conjunction with most other activities, etc. This joint production issue may be one reason the OIF used such broad aggregates in their national study.
- This approach would tend to miss the economic contribution of out-of-state visitors recreating in California.
- Apart from the activities covered in the OIF and USFWS studies, data coverage for trip expenditures is highly uneven across activities.
- This approach offers little or no information on where trip expenditures occur within California and is not very helpful in developing economic impact estimates for sub-state regions.

The activity-based approach is, however, the preferred approach for estimating overall durable equipment expenditures, since equipment purchases are generally not specifically associated with a particular trip.

Considerations regarding a purely location-based approach. This is the approach we will utilize for the analysis of the economic impacts of California State Parks. The availability of expenditure data from the SPVS and the visitation data from the Statistical Report makes this approach preferable. It is also the approach commonly utilized in analyzing the impacts of NPS system units — also driven by the data available for the analysis. The location-based approach will allow us to analyze where trip expenditures occur within California for destination-based recreation on public lands, which is helpful in developing economic impact estimates for sub-state regions.

There are, however, also several issues with a purely location-based approach:

- A number of recreation activities that undoubtedly generate significant expenditures and economic impacts are not primarily confined to lands managed by CSP or federal agencies. Obvious examples include boating (especially marine boating), bicycling, fishing, hunting and golf.
- Overall, most outdoor recreation participation occurs locally, either in local community parks close to home or on the streets and trails of the resident’s community. (See SPOA

survey responses related to travel times). There is little or no data on visitation levels for local parks and facilities.

- In general local recreation has the smallest trip expenditures, typically zero or near zero for most local park users, though it may (in aggregate) offer the greatest total economic benefits to the users because of the large numbers of participants. Some local parks (e.g. Balboa Park in San Diego) do draw significant numbers of visitors from outside the community (and outside the state).
- This approach does not work well for durable equipment purchases (e.g., boats, bicycles, tents).

Recommended approach. The best option for analyzing the statewide (and regional) impacts of outdoor recreation in California may be a hybrid of the two approaches. Under the hybrid approach, trip-expenditures would be estimated primarily for destination-based recreation and would reflect visitor expenditures for visits to State Parks, National Parks, other public lands. Expenditures for some activities that do not primarily occur on state and federally-managed lands (such as those just identified) will be estimated where feasible based on an activity-based approach. Adjustments will be needed to avoid or minimize potential double-counting. Equipment expenditures would be based on “top-down” data sources such as IMPLAN and the CES or NSGA to derive overall statewide and regional spending for equipment purchases associated with each major activity type.

The hybrid approach provides a “conservative” estimate of the economic impacts of recreation. Clearly there are some trip expenditures associated with recreation outside of the destination-based categories we have identified and outside of available activity-based data studies. For example, trip expenditures to regional or state sports championships, large bicycle tours, or trip expenditures to high profile local or regional parks may not be captured. In essence, the approach we are suggesting is designed to capture the trip expenditures that can be quantified consistently across the state based on available data.

All of the foregoing discussion relates to the estimation of the “direct” economic impacts of recreation that result from the expenditures of recreation participants. Expenditures of recreation management agencies, including California State Parks and federal and local agencies, also contribute to the direct economic impact. BBC will include the operations expenditures associated with recreation where sufficiently detailed data are available.

To estimate the total impact of recreation expenditures on the state and regional economies, it is also necessary to calculate “secondary” impacts—including indirect effects which result from the purchases that firms supplying recreation-related goods and services make from other firms and induced effects which result from the expenditures by employees of directly and indirectly affected firms. To estimate these secondary impacts, the study team proposes to use the IMPLAN model. IMPLAN was originally developed by the USFS and is now widely used in applications such as this one. One of the strengths of the IMPLAN model is that it can be used at the county level, or for combinations of counties into the regions of interest for this study. IMPLAN also provides a large number of economic impact metrics including output (generally equivalent to sales for most sectors except retail where it provides

the retail margin), value-added (comparable to gross state product), employment, employee earnings and tax impacts.

Economic benefits of outdoor recreation. Compared to the economic impact analysis, analyzing the economic benefits of recreation is relatively straightforward. As noted near the beginning of this report, the economic benefits metric indicates the value that recreation participants receive from participating in outdoor recreation, net of their actual expenditures to participate.

In essence, the economic benefits analysis requires two things — estimates of recreation participation by activity-type (and perhaps by type of location) and estimates of the corresponding value that participants receive from each day of participation in a particular activity. The SPVS provides data on the types of activities that State Park visitors participate in, and this data can be generalized across the state park system as a whole. The SPOA provides overall recreation participation estimates for California residents and can be further analyzed by region.

The second part of the benefits equation is the value of participation (per day) by activity type. The two primary sources of these values that will be examined in this study are the willingness-to-pay responses from the SPOA and the meta-analysis on previous studies of recreational benefits previously developed by Dr. Loomis (discussed on page 6 of this section). The Corps' UDVs for recreation activities in different types of settings may also be incorporated in this analysis, if needed.

There are obvious reasons to incorporate the SPOA willingness-to-pay results in this study, including the fact that it is drawn from the same survey as the overall participation estimates for California outdoor recreation. The study team is concerned, however, that the clustering of most responses in the highest value category for some of the most highly-valued recreational activities indicates that many respondents would likely be willing to pay more than the amounts indicated in any of the categories in the SPOA willingness-to-pay questions. Consequently, the SPOA willingness-to-pay amounts may be biased downward, and may effectively provide a conservative view of the benefits of some activities.

With these issues in mind, we believe it is appropriate also to estimate benefits based on previous studies, as summarized in Dr. Loomis's analysis. Since that analysis also provides the underlying data from the studies, it may be possible to further refine the benefits estimates based on the type of setting in which the participation occurs (e.g. local park, state park, national park). By using both the SPOA-based willingness-to-pay values and those derived from Dr. Loomis's work, we can provide a range of estimated recreation benefits.

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APPENDIX A. Definition of California Regions

The table below shows the counties that make up each of the seven regions.

Region (counties)	Region (counties)	Region (counties)	Region (counties)
Northern California	Central Valley	Central Coast	Southern California
Del Norte	Butte	Monterey	Imperial
Glenn	Colusa	San Benito	Orange
Humboldt	Fresno	San Luis Obispo	Riverside
Lake	Kern	Santa Barbara	San Bernardino
Lassen	Kings	Santa Cruz	San Diego
Mendocino	Madera		
Modoc	Merced		
Plumas	Sacramento		
Shasta	San Joaquin		
Sierra	Stanislaus		
Siskiyou	Sutter		
Tehama	Tulare		
Trinity	Yolo		
	Yuba		
Sierra	San Francisco Bay Area	Los Angeles	
Alpine	Alameda	Los Angeles	
Amador	Contra Costa	Ventura	
Calaveras	Marin		
El Dorado	Napa		
Inyo	San Francisco		
Mariposa	San Mateo		
Mono	Santa Clara		
Nevada	Solano		
Placer	Sonoma		
Tuolumne			

Source: California Department of Parks and Recreation. 2009. Complete Findings – Survey on Public Opinions and Attitudes on Outdoor Recreation in California.

APPENDIX B.

Crosswalk between Spending Categories and IMPLAN Sectors

Spending Category	IMPLAN Sector(s)	Sector Description
Lodging	411	Hotels and motels, including casino hotels
Food	413	Food services and drinking places
	324	Retail - Food and beverage
Supplies	327	Retail - Clothing and clothing accessories
	328	Retail - Sporting goods, hobby, book and music
	329	Retail - General merchandise
	330	Retail - Miscellaneous
Gasoline	326	Retail - Gasoline stations
Recreation	363	General and consumer goods rental except video tapes and discs
	410	Other amusement and recreation industries
Boating	320	Retail - Motor vehicle and parts
	326	Retail - Gasoline stations
	357	Insurance Carriers
	410	Other amusement and recreation industries
Camping	418	Personal and household goods repair and maintenance
	412	Other accommodation
Other vehicle expenses	320	Retail - Motor vehicle and parts
Public transportation	336	Transit and ground passenger transportation

Source: BBC Research & Consulting based on IMPLAN, 2010

APPENDIX C.

Economic Contribution from Federally-managed Lands – Detailed Results

The table below provides more detailed results of the estimated economic contribution from recreation on federally-managed lands than presented in Section 2 of the report. For each economic metric, the results are divided into three categories:

- **Direct:** the initial economic effects from visitor expenditures and operating expenditures.
- **Indirect:** the economic effects resulting from purchases of goods and services by directly affected industries from other firms.
- **Induced:** the economic effects stimulated by purchases by employees of directly and indirectly affected businesses.

Figure C-1.
Economic Contribution from Recreation on Federally-managed Lands

	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Statewide*
Sales (million dollars)								
Direct	\$35.1	\$350.4	\$320.9	\$441.1	\$607.2	\$1,298.5	\$451.0	\$3,504.3
Indirect	\$9.0	\$109.3	\$95.8	\$96.3	\$238.5	\$322.6	\$122.7	\$1,641.3
Induced	\$10.0	\$118.1	\$101.4	\$110.8	\$234.9	\$334.7	\$124.4	\$1,913.5
Total	\$54.1	\$577.8	\$518.2	\$648.2	\$1,080.6	\$1,955.8	\$698.1	\$7,059.1
Value Added (million dollars)								
Direct	\$22.2	\$215.9	\$205.5	\$269.5	\$387.6	\$792.9	\$283.7	\$2,197.3
Indirect	\$5.4	\$58.0	\$52.8	\$52.7	\$139.6	\$175.7	\$72.3	\$902.8
Induced	\$6.1	\$69.1	\$58.6	\$65.5	\$140.0	\$204.4	\$74.1	\$1,090.4
Total	\$33.7	\$343.1	\$316.8	\$387.7	\$667.2	\$1,173.1	\$430.1	\$4,190.5
Labor Income (million dollars)								
Direct	\$13.7	\$132.1	\$124.9	\$162.6	\$236.0	\$482.7	\$170.5	\$1,334.3
Indirect	\$2.9	\$34.0	\$31.3	\$30.9	\$77.1	\$95.9	\$39.7	\$521.2
Induced	\$3.1	\$37.4	\$32.4	\$34.6	\$76.4	\$103.9	\$38.9	\$603.7
Total	\$19.6	\$203.4	\$188.6	\$228.1	\$389.5	\$682.5	\$249.1	\$2,459.2
Employment								
Direct	378	4,391	3,553	5,784	6,550	15,897	5,379	39,574
Indirect	65	761	524	804	1,184	2,313	783	9,154
Induced	80	955	684	1,024	1,385	2,710	904	12,498
Total	523	6,107	4,761	7,612	9,120	20,921	7,066	61,227

Source: IMPLAN, 2010.

Note: *Statewide economic contribution captures inter-regional effects, and, therefore, exceeds the sum of the individual region effects.

All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

APPENDIX D.

Economic Contribution from the SPS – Detailed Results by Region

The tables in this appendix provide more detailed results of the estimated economic contribution of the SPS by region than presented in Section 2 of the report. For each economic metric, the results are divided into three categories:

- ***Direct:*** the initial economic effects from visitor expenditures and operating expenditures.
- ***Indirect:*** the economic effects resulting from purchases of goods and services by directly affected industries from other firms.
- ***Induced:*** the economic effects stimulated by purchases by employees of directly and indirectly affected businesses.

Figure D-1.
Economic Contribution to the Central Coast Region from the SPS

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$529.0	\$40.8	\$48.7	\$618.5
Indirect	\$138.4	\$10.4	\$13.2	\$162.0
Induced	\$139.5	\$10.9	\$19.3	\$169.7
Total	\$806.9	\$62.2	\$81.2	\$950.3
Value Added (million dollars)				
Direct	\$327.5	\$26.0	\$32.3	\$385.7
Indirect	\$80.4	\$6.2	\$8.5	\$95.0
Induced	\$85.2	\$6.7	\$11.8	\$103.7
Total	\$493.1	\$38.8	\$52.6	\$584.5
Labor Income (million dollars)				
Direct	\$184.3	\$14.6	\$27.9	\$226.7
Indirect	\$45.0	\$3.4	\$4.0	\$52.3
Induced	\$43.7	\$3.4	\$6.0	\$53.1
Total	\$273.0	\$21.3	\$37.9	\$332.2
Employment				
Direct	5,485	424	411	6,319
Indirect	1,004	75	99	1,178
Induced	1,111	87	154	1,352
Total	7,600	586	664	8,849

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure D-2.
Economic Contribution to the Central Valley Region from the SPS

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$382.8	\$24.7	\$34.0	\$441.5
Indirect	\$121.5	\$7.4	\$9.9	\$138.9
Induced	\$120.1	\$7.9	\$16.6	\$144.6
Total	\$624.4	\$40.0	\$60.5	\$724.9
Value Added (million dollars)				
Direct	\$234.4	\$15.7	\$22.6	\$272.6
Indirect	\$63.7	\$4.0	\$5.9	\$73.6
Induced	\$70.3	\$4.6	\$9.7	\$84.6
Total	\$368.3	\$24.4	\$38.2	\$430.9
Labor Income (million dollars)				
Direct	\$130.8	\$8.7	\$19.6	\$159.0
Indirect	\$37.9	\$2.3	\$3.0	\$43.3
Induced	\$38.0	\$2.5	\$5.2	\$45.7
Total	\$206.6	\$13.6	\$27.8	\$248.0
Employment				
Direct	4,465	277	345	5,087
Indirect	847	53	72	972
Induced	971	64	135	1,169
Total	6,283	393	552	7,228

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure D-3.
Economic Contribution to the Los Angeles Region from the SPS

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$296.6	\$33.1	\$16.1	\$345.8
Indirect	\$92.7	\$10.0	\$4.5	\$107.2
Induced	\$86.3	\$9.8	\$7.0	\$103.1
Total	\$475.6	\$52.9	\$27.6	\$556.1
Value Added (million dollars)				
Direct	\$186.0	\$21.3	\$10.7	\$218.0
Indirect	\$49.9	\$5.5	\$2.6	\$58.1
Induced	\$49.9	\$5.7	\$4.0	\$59.6
Total	\$285.8	\$32.5	\$17.4	\$335.7
Labor Income (million dollars)				
Direct	\$102.4	\$11.8	\$9.3	\$123.4
Indirect	\$30.5	\$3.3	\$1.5	\$35.3
Induced	\$27.6	\$3.1	\$2.2	\$32.9
Total	\$160.5	\$18.2	\$13.0	\$191.6
Employment				
Direct	2,912	336	87	3,336
Indirect	507	55	26	589
Induced	582	66	47	696
Total	4,002	457	161	4,620

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure D-4.
Economic Contribution to the Northern California Region from the SPS

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$308.3	\$24.1	\$14.1	\$346.5
Indirect	\$69.8	\$5.2	\$3.1	\$78.0
Induced	\$72.5	\$5.8	\$5.4	\$83.7
Total	\$450.5	\$35.1	\$22.6	\$508.2
Value Added (million dollars)				
Direct	\$184.6	\$15.0	\$9.4	\$209.0
Indirect	\$37.1	\$2.8	\$1.8	\$41.7
Induced	\$42.8	\$3.4	\$3.2	\$49.5
Total	\$264.5	\$21.3	\$14.4	\$300.2
Labor Income (million dollars)				
Direct	\$104.2	\$8.4	\$8.1	\$120.7
Indirect	\$22.6	\$1.7	\$0.9	\$25.2
Induced	\$22.7	\$1.8	\$1.7	\$26.1
Total	\$149.5	\$11.9	\$10.8	\$172.1
Employment				
Direct	4,005	298	125	4,428
Indirect	587	44	26	657
Induced	670	54	50	773
Total	5,262	395	201	5,858

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

**Figure D-5.
Economic Contribution to the San Francisco Bay Area Region from the SPS**

	Day Trip Vistors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$507.0	\$23.0	\$21.6	\$551.5
Indirect	\$205.3	\$9.0	\$8.8	\$223.0
Induced	\$185.1	\$8.4	\$11.4	\$204.9
Total	\$897.4	\$40.4	\$41.7	\$979.5
Value Added (million dollars)				
Direct	\$319.7	\$14.9	\$14.3	\$348.9
Indirect	\$119.1	\$5.3	\$5.5	\$130.0
Induced	\$110.3	\$5.0	\$6.8	\$122.1
Total	\$549.1	\$25.3	\$26.6	\$601.0
Labor Income (million dollars)				
Direct	\$179.3	\$8.3	\$12.4	\$199.9
Indirect	\$67.4	\$2.9	\$2.8	\$73.1
Induced	\$60.2	\$2.7	\$3.7	\$66.7
Total	\$306.9	\$14.0	\$18.8	\$339.7
Employment				
Direct	4,848	220	179	5,246
Indirect	1,028	45	46	1,120
Induced	1,091	50	67	1,208
Total	6,968	315	292	7,575

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure D-6.
Economic Contribution to the Sierra Region from the SPS

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$121.1	\$8.5	\$18.1	\$147.6
Indirect	\$30.2	\$2.1	\$5.0	\$37.3
Induced	\$29.4	\$2.1	\$6.9	\$38.4
Total	\$180.6	\$12.7	\$30.1	\$223.4
Value Added (million dollars)				
Direct	\$74.3	\$5.3	\$12.0	\$91.6
Indirect	\$16.4	\$1.2	\$3.0	\$20.6
Induced	\$17.9	\$1.3	\$4.2	\$23.5
Total	\$108.6	\$7.8	\$19.3	\$135.7
Labor Income (million dollars)				
Direct	\$41.8	\$3.0	\$10.4	\$55.2
Indirect	\$9.0	\$0.6	\$1.4	\$11.0
Induced	\$9.1	\$0.6	\$2.1	\$11.9
Total	\$59.9	\$4.3	\$14.0	\$78.2
Employment				
Direct	1,353	94	185	1,632
Indirect	216	15	37	268
Induced	238	17	56	311
Total	1,808	126	278	2,212

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure D-7.
Economic Contribution to the Southern California Region from the SPS

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$844.2	\$75.2	\$45.0	\$964.4
Indirect	\$232.4	\$20.4	\$12.5	\$265.3
Induced	\$219.3	\$19.7	\$17.5	\$256.5
Total	\$1,295.9	\$115.3	\$75.1	\$1,486.3
Value Added (million dollars)				
Direct	\$524.2	\$48.1	\$29.9	\$602.2
Indirect	\$134.6	\$12.1	\$8.0	\$154.7
Induced	\$130.7	\$11.7	\$10.5	\$152.9
Total	\$789.4	\$72.0	\$48.4	\$909.8
Labor Income (million dollars)				
Direct	\$294.7	\$8.4	\$8.1	\$311.3
Indirect	\$22.6	\$1.7	\$0.9	\$25.2
Induced	\$22.7	\$1.8	\$1.7	\$26.1
Total	\$340.0	\$11.9	\$10.8	\$362.7
Employment				
Direct	9,355	817	505	10,677
Indirect	1,497	132	82	1,711
Induced	1,595	143	128	1,866
Total	12,446	1,092	715	14,253

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

APPENDIX E.

Economic Contribution from the SPS – Detailed Results by Park Type

The tables in this appendix provide detailed results of the estimated economic contribution from the SPS by park type. For each economic metric, the results are divided into three categories:

- ***Direct:*** the initial economic effects from visitor expenditures and operating expenditures.
- ***Indirect:*** the economic effects resulting from purchases of goods and services by directly affected industries from other firms.
- ***Induced:*** the economic effects stimulated by purchases by employees of directly and indirectly affected businesses.

Figure E-1.
Economic Contribution from State Beaches (SBs)

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$904.8	\$51.3	\$49.4	\$1,005.5
Indirect	\$427.6	\$23.4	\$21.3	\$472.3
Induced	\$469.5	\$26.8	\$36.2	\$532.5
Total	\$1,801.9	\$101.5	\$106.9	\$2,010.3
Value Added (million dollars)				
Direct	\$565.0	\$32.8	\$32.8	\$630.6
Indirect	\$233.0	\$13.0	\$13.0	\$258.9
Induced	\$267.5	\$15.3	\$20.6	\$303.5
Total	\$1,065.5	\$61.1	\$66.4	\$1,193.0
Labor Income (million dollars)				
Direct	\$318.5	\$18.5	\$28.3	\$365.4
Indirect	\$136.7	\$7.6	\$6.8	\$151.0
Induced	\$148.1	\$8.5	\$11.4	\$168.0
Total	\$603.4	\$34.5	\$46.5	\$684.4
Employment				
Direct	9,625	546	385	10,556
Indirect	2,387	132	127	2,647
Induced	3,066	175	237	3,479
Total	15,078	854	749	16,682

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

**Figure E-2.
Economic Contribution from State Historical Parks (SHPs)**

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$295.9	\$0.9	\$27.0	\$323.8
Indirect	\$143.6	\$0.4	\$11.7	\$155.7
Induced	\$152.5	\$0.5	\$19.8	\$172.7
Total	\$592.0	\$1.9	\$58.4	\$652.3
Value Added (million dollars)				
Direct	\$181.2	\$0.6	\$17.9	\$199.7
Indirect	\$78.5	\$0.2	\$7.1	\$85.8
Induced	\$86.9	\$0.3	\$11.3	\$98.4
Total	\$346.6	\$1.1	\$36.3	\$384.0
Labor Income (million dollars)				
Direct	\$102.1	\$0.3	\$15.5	\$118.0
Indirect	\$45.7	\$0.1	\$3.7	\$49.6
Induced	\$48.1	\$0.2	\$6.2	\$54.5
Total	\$196.0	\$0.6	\$25.4	\$222.0
Employment				
Direct	3,098	10	211	3,318
Indirect	803	2	70	875
Induced	996	3	130	1,129
Total	4,896	15	410	5,321

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

**Figure E-3.
Economic Contribution from State Parks (SPs)**

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$1,523.0	\$107.6	\$65.5	\$1,696.1
Indirect	\$723.5	\$49.3	\$28.3	\$801.1
Induced	\$786.0	\$55.9	\$47.9	\$889.9
Total	\$3,032.5	\$212.8	\$141.7	\$3,387.1
Value Added (million dollars)				
Direct	\$948.0	\$68.7	\$43.5	\$1,060.1
Indirect	\$393.2	\$27.6	\$17.2	\$438.0
Induced	\$447.9	\$31.9	\$27.3	\$507.1
Total	\$1,789.0	\$128.1	\$88.0	\$2,005.2
Labor Income (million dollars)				
Direct	\$530.3	\$38.3	\$37.6	\$606.2
Indirect	\$231.9	\$15.9	\$8.9	\$256.7
Induced	\$248.0	\$17.6	\$15.1	\$280.8
Total	\$1,010.2	\$71.9	\$61.6	\$1,143.7
Employment				
Direct	15,739	1,125	510	17,374
Indirect	4,048	279	169	4,496
Induced	5,134	365	314	5,813
Total	24,920	1,769	993	27,682

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure E-4.
Economic Contribution from State Recreation Areas (SRAs)

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$138.0	\$17.4	\$29.6	\$185.0
Indirect	\$63.8	\$7.9	\$12.8	\$84.4
Induced	\$71.6	\$9.1	\$21.7	\$102.3
Total	\$273.3	\$34.3	\$64.0	\$371.7
Value Added (million dollars)				
Direct	\$87.6	\$11.2	\$19.6	\$118.4
Indirect	\$35.8	\$4.5	\$7.8	\$48.1
Induced	\$40.8	\$5.2	\$12.3	\$58.3
Total	\$164.2	\$20.9	\$39.8	\$224.8
Labor Income (million dollars)				
Direct	\$48.8	\$6.2	\$17.0	\$72.0
Indirect	\$20.6	\$2.6	\$4.0	\$27.2
Induced	\$22.6	\$2.9	\$6.8	\$32.3
Total	\$92.0	\$11.7	\$27.8	\$131.5
Employment				
Direct	1,420	179	231	1,829
Indirect	363	45	76	484
Induced	468	59	142	669
Total	2,250	283	449	2,982

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

**Figure E-5.
Economic Contribution from State Vehicular Recreation Areas (SVRAs)**

	Day Trip Visitors	Camping Visitors	Operating Expenditures	Total
Sales (million dollars)				
Direct	\$127.3	\$52.2	\$26.1	\$205.6
Indirect	\$60.2	\$23.7	\$11.3	\$95.2
Induced	\$64.9	\$26.8	\$19.1	\$110.8
Total	\$252.4	\$102.6	\$56.6	\$411.6
Value Added (million dollars)				
Direct	\$79.4	\$33.5	\$17.4	\$130.2
Indirect	\$33.3	\$13.5	\$6.9	\$53.7
Induced	\$37.0	\$15.3	\$10.9	\$63.2
Total	\$149.7	\$62.2	\$35.1	\$247.1
Labor Income (million dollars)				
Direct	\$43.7	\$18.3	\$15.0	\$77.0
Indirect	\$19.3	\$7.7	\$3.6	\$30.5
Induced	\$20.5	\$8.5	\$6.0	\$35.0
Total	\$83.4	\$34.4	\$24.6	\$142.5
Employment				
Direct	1,260	515	204	1,978
Indirect	339	135	67	542
Induced	424	175	125	725
Total	2,023	825	396	3,244

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

APPENDIX F.

Economic Contribution from Regional and Local Parks, Playgrounds and Public Sports Facilities – Detailed Results

The table below provides more detailed results of the estimated economic contribution from recreation at local and regional parks than presented in Section 2 of the report. For each economic metric, the results are divided into three categories:

- **Direct:** the initial economic effects from visitor expenditures.
- **Indirect:** the economic effects resulting from purchases of goods and services by directly affected industries from other firms.
- **Induced:** the economic effects stimulated by purchases by employees of directly and indirectly affected businesses.

Figure F-1.
Economic Contribution from Regional and Local Parks, Playgrounds and Public Sports Facilities

	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Statewide*
Sales (million dollars)								
Direct	\$163.4	\$699.3	\$1,499.6	\$64.7	\$1,166.8	\$72.3	\$1,452.3	\$5,118.3
Indirect	\$41.0	\$208.7	\$449.7	\$13.4	\$452.5	\$17.7	\$392.9	\$2,311.4
Induced	\$44.1	\$226.1	\$450.3	\$15.8	\$433.7	\$18.2	\$387.3	\$2,689.9
Total	\$248.5	\$1,134.2	\$2,399.6	\$93.9	\$2,053.0	\$108.2	\$2,232.5	\$10,119.5
Value Added (million dollars)								
Direct	\$105.0	\$445.4	\$965.1	\$41.0	\$758.7	\$46.1	\$933.7	\$3,294.6
Indirect	\$24.7	\$115.0	\$251.0	\$7.5	\$271.5	\$10.0	\$236.9	\$1,316.5
Induced	\$27.0	\$132.4	\$260.1	\$9.3	\$258.4	\$11.1	\$230.8	\$1,533.0
Total	\$156.7	\$692.8	\$1,476.2	\$57.9	\$1,288.6	\$67.2	\$1,401.4	\$6,144.0
Labor Income (million dollars)								
Direct	\$59.6	\$251.5	\$545.6	\$23.2	\$430.7	\$26.2	\$527.4	\$1,865.4
Indirect	\$13.0	\$65.5	\$147.6	\$4.3	\$146.9	\$5.1	\$127.1	\$743.3
Induced	\$13.8	\$71.5	\$143.8	\$4.9	\$141.1	\$5.6	\$121.3	\$848.7
Total	\$86.4	\$388.5	\$837.0	\$32.5	\$718.7	\$37.0	\$775.8	\$3,457.4
Employment								
Direct	1,756	8,162	16,368	786	11,967	834	16,859	56,186
Indirect	296	1,473	2,478	112	2,285	125	2,514	13,127
Induced	351	1,828	3,037	146	2,558	147	2,818	17,578
Total	2,403	11,463	21,884	1,044	16,810	1,105	22,190	86,890

Source: IMPLAN, 2010.

Note: *Statewide economic contribution captures inter-regional effects, and, therefore, exceeds the sum of the individual region effects.

All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

APPENDIX G.

Economic Contribution from Selected Activities – Detailed Results by Region

The tables in this appendix provide more detailed results of the estimated additional economic contribution from selected activities by region than presented in Section 2 of the report. For each economic metric, the results are divided into three categories:

- ***Direct***: the initial economic effects from trip expenditures related to participation in each activity.
- ***Indirect***: the economic effects resulting from purchases of goods and services by directly affected industries from other firms.
- ***Induced***: the economic effects stimulated by purchases by employees of directly and indirectly affected businesses.

Figure G-1.
Additional Economic Contribution to the Central Coast Region from Selected Activities

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$38.4	\$150.2	\$28.8	\$217.4
Indirect	\$11.0	\$42.8	\$10.3	\$64.1
Induced	\$10.0	\$38.7	\$7.3	\$56.1
Total	\$59.4	\$231.7	\$46.5	\$337.6
Value Added (million dollars)				
Direct	\$22.0	\$88.7	\$13.4	\$124.1
Indirect	\$6.4	\$25.4	\$6.1	\$37.9
Induced	\$6.1	\$23.7	\$4.5	\$34.3
Total	\$34.5	\$137.8	\$24.0	\$196.3
Labor Income (million dollars)				
Direct	\$12.9	\$49.6	\$8.7	\$71.3
Indirect	\$3.5	\$14.0	\$3.4	\$20.9
Induced	\$3.1	\$12.1	\$2.3	\$17.6
Total	\$19.6	\$75.8	\$14.4	\$109.8
Employment				
Direct	387	1,273	303	1,963
Indirect	80	325	80	485
Induced	80	308	58	447
Total	547	1,906	442	2,895

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure G-2.
Additional Economic Contribution to the Central Valley Region from Selected Activities

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$93.0	\$797.0	\$57.7	\$947.8
Indirect	\$31.3	\$262.3	\$24.6	\$318.1
Induced	\$28.5	\$241.8	\$16.5	\$286.8
Total	\$152.8	\$1,301.1	\$98.8	\$1,552.7
Value Added (million dollars)				
Direct	\$53.3	\$462.5	\$25.5	\$541.3
Indirect	\$16.3	\$144.0	\$12.9	\$173.2
Induced	\$16.7	\$141.5	\$9.7	\$167.9
Total	\$86.3	\$747.9	\$48.1	\$882.4
Labor Income (million dollars)				
Direct	\$30.4	\$254.7	\$15.8	\$300.8
Indirect	\$9.6	\$85.6	\$7.7	\$103.0
Induced	\$9.0	\$76.5	\$5.2	\$90.7
Total	\$49.0	\$416.8	\$28.7	\$494.5
Employment				
Direct	1,011	7,495	639	9,145
Indirect	216	1,954	183	2,352
Induced	230	1,954	133	2,318
Total	1,457	11,403	955	13,815

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure G-3.
Additional Economic Contribution to the Los Angeles Region from Selected Activities

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$48.4	\$1,007.6	\$81.7	\$1,137.7
Indirect	\$16.5	\$341.3	\$35.4	\$393.1
Induced	\$14.2	\$289.4	\$23.2	\$326.7
Total	\$79.1	\$1,638.3	\$140.2	\$1,857.6
Value Added (million dollars)				
Direct	\$28.1	\$592.8	\$37.0	\$658.0
Indirect	\$9.1	\$189.2	\$19.1	\$217.4
Induced	\$8.2	\$167.1	\$13.4	\$188.7
Total	\$45.4	\$949.1	\$69.6	\$1,064.1
Labor Income (million dollars)				
Direct	\$16.4	\$330.9	\$24.1	\$371.4
Indirect	\$5.5	\$114.7	\$11.6	\$131.8
Induced	\$4.5	\$92.4	\$7.4	\$104.3
Total	\$26.4	\$538.1	\$43.1	\$607.5
Employment				
Direct	479	8,736	859	10,074
Indirect	92	1,946	200	2,239
Induced	96	1,951	156	2,203
Total	667	12,634	1,215	14,516

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure G-4.
Additional Economic Contribution to the Northern California Region from Selected Activities

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$192.3	\$137.1	\$8.5	\$337.9
Indirect	\$47.1	\$33.6	\$2.6	\$83.3
Induced	\$43.8	\$31.0	\$1.8	\$76.7
Total	\$283.2	\$201.8	\$12.9	\$497.9
Value Added (million dollars)				
Direct	\$103.6	\$78.1	\$3.7	\$185.5
Indirect	\$25.4	\$18.5	\$1.4	\$45.2
Induced	\$25.9	\$18.3	\$1.1	\$45.3
Total	\$154.9	\$115.0	\$6.2	\$276.0
Labor Income (million dollars)				
Direct	\$61.5	\$43.3	\$2.4	\$107.1
Indirect	\$15.0	\$11.0	\$0.8	\$26.8
Induced	\$13.7	\$9.7	\$0.6	\$24.0
Total	\$90.1	\$64.0	\$3.8	\$157.9
Employment				
Direct	2,279	1,358	91	3,729
Indirect	391	290	22	703
Induced	405	287	17	709
Total	3,074	1,935	130	5,140

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

**Figure G-5.
Additional Economic Contribution to the San Francisco Bay Area Region from Selected Activities**

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$178.8	\$882.6	\$69.5	\$1,130.9
Indirect	\$79.1	\$385.8	\$37.9	\$502.8
Induced	\$65.7	\$318.6	\$25.5	\$409.9
Total	\$323.6	\$1,587.0	\$132.9	\$2,043.5
Value Added (million dollars)				
Direct	\$104.0	\$525.6	\$33.2	\$662.8
Indirect	\$46.0	\$229.7	\$22.1	\$297.9
Induced	\$39.2	\$189.9	\$15.2	\$244.2
Total	\$189.2	\$945.2	\$70.6	\$1,204.9
Labor Income (million dollars)				
Direct	\$61.7	\$294.7	\$21.6	\$378.0
Indirect	\$25.9	\$130.0	\$12.5	\$168.3
Induced	\$21.4	\$103.7	\$8.3	\$133.4
Total	\$109.0	\$528.3	\$42.4	\$679.7
Employment				
Direct	1,712	7,085	677	9,475
Indirect	402	2,024	200	2,626
Induced	387	1,878	150	2,416
Total	2,501	10,987	1,027	14,516

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure G-6.
Additional Economic Contribution to the Sierra Region from Selected Activities

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$19.9	\$130.2	\$20.3	\$170.3
Indirect	\$5.3	\$36.6	\$7.0	\$48.9
Induced	\$4.7	\$30.9	\$4.6	\$40.1
Total	\$29.9	\$197.6	\$31.9	\$259.3
Value Added (million dollars)				
Direct	\$11.1	\$75.4	\$8.9	\$95.3
Indirect	\$2.9	\$20.6	\$4.0	\$27.5
Induced	\$2.9	\$18.8	\$2.8	\$24.5
Total	\$16.9	\$114.8	\$15.6	\$147.3
Labor Income (million dollars)				
Direct	\$6.5	\$42.1	\$5.8	\$54.4
Indirect	\$1.6	\$11.2	\$2.1	\$15.0
Induced	\$1.5	\$9.6	\$1.4	\$12.5
Total	\$9.6	\$62.9	\$9.3	\$81.8
Employment				
Direct	217	1,202	228	1,647
Indirect	39	270	53	362
Induced	38	250	37	325
Total	294	1,721	319	2,333

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

Figure G-7.
Additional Economic Contribution to the Southern California Region from Selected Activities

	Hunting & Fishing	Boating	Golf	Total
Output (million dollars)				
Direct	\$217.3	\$994.6	\$125.1	\$1,337.0
Indirect	\$67.4	\$303.9	\$48.7	\$420.0
Induced	\$55.7	\$253.6	\$31.3	\$340.6
Total	\$340.3	\$1,552.1	\$205.0	\$2,097.5
Value Added (million dollars)				
Direct	\$123.3	\$587.3	\$57.3	\$767.9
Indirect	\$39.1	\$180.0	\$28.3	\$247.4
Induced	\$33.2	\$151.1	\$18.6	\$202.9
Total	\$195.6	\$918.4	\$104.2	\$1,218.2
Labor Income (million dollars)				
Direct	\$72.4	\$327.7	\$37.2	\$437.3
Indirect	\$21.8	\$100.9	\$15.7	\$138.4
Induced	\$17.5	\$79.4	\$9.8	\$106.6
Total	\$111.7	\$508.0	\$62.6	\$682.3
Employment				
Direct	2,324	9,142	1,319	12,786
Indirect	434	2,010	322	2,766
Induced	405	1,844	227	2,477
Total	3,164	12,996	1,868	18,028

Source: IMPLAN, 2010.

Note: All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.

APPENDIX H.

Economic Contribution from Recreation-related Equipment Purchases – Detailed Results

The table below provides more detailed results of the estimated economic contribution from recreation-related equipment purchases than presented in Section 2 of the report. For each economic metric, the results are divided into three categories:

- **Direct:** the initial economic effects from direct expenditures on outdoor recreation-related equipment.
- **Indirect:** the economic effects resulting from purchases of goods and services by directly affected industries from other firms.
- **Induced:** the economic effects stimulated by purchases by employees of directly and indirectly affected businesses.

Figure H-1.
Economic Contribution from Recreation-related Equipment Purchases

	Central Coast	Central Valley	Los Angeles	Northern California	San Francisco Bay Area	Sierra	Southern California	Statewide*
Sales (million dollars)								
Direct	\$136.3	\$471.5	\$939.6	\$68.9	\$949.3	\$83.7	\$859.8	\$3,509.1
Indirect	\$12.7	\$49.4	\$104.3	\$5.0	\$138.3	\$7.2	\$87.2	\$545.6
Induced	\$17.7	\$74.4	\$133.3	\$8.6	\$164.7	\$9.9	\$108.7	\$817.5
Total	\$166.7	\$595.2	\$1,177.2	\$82.5	\$1,252.4	\$100.9	\$1,055.7	\$4,872.2
Value Added (million dollars)								
Direct	\$37.1	\$129.7	\$256.4	\$19.1	\$259.8	\$21.9	\$233.3	\$910.6
Indirect	\$7.8	\$28.1	\$59.3	\$2.9	\$84.2	\$4.1	\$53.6	\$319.3
Induced	\$10.8	\$43.5	\$76.9	\$5.1	\$98.2	\$6.0	\$64.8	\$465.8
Total	\$55.6	\$201.4	\$392.7	\$27.0	\$442.2	\$32.0	\$351.7	\$1,695.6
Labor Income (million dollars)								
Direct	\$25.0	\$90.3	\$170.7	\$13.7	\$174.7	\$15.1	\$155.3	\$613.2
Indirect	\$4.0	\$15.9	\$34.7	\$1.6	\$45.2	\$2.1	\$28.6	\$179.3
Induced	\$5.5	\$23.5	\$42.6	\$2.7	\$53.6	\$3.1	\$34.1	\$257.9
Total	\$34.6	\$129.7	\$248.0	\$18.0	\$273.5	\$20.2	\$217.9	\$1,050.5
Employment								
Direct	841	2,951	5,068	466	5,335	489	5,046	19,181
Indirect	93	359	586	43	708	51	567	3,177
Induced	141	600	897	79	970	80	790	5,334
Total	1,075	3,910	6,551	588	7,013	620	6,403	27,693

Source: IMPLAN, 2010.

Note: *Statewide economic contribution captures inter-regional effects, and, therefore, exceeds the sum of the individual region effects.

All monetary figures are in 2008 dollars.

Value added reflects sales net of the costs of inputs. When summed across all industries, generally equivalent to gross domestic product (GDP).

Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution. Specifically, value added is a subset of sales and labor income is a subset of value added.