BBC RESEARCH & CONSULTING

# California Outdoor Recreation Economic Study: State Park System Contributions and Benefits


BBC
RESEARCH &
CONSULTING

# California Outdoor Recreation Economic Study: State Park System Contributions and Benefits

**Prepared for**

California State Parks
1416 9th Street
Sacramento, CA 95814

**Prepared by**

BBC Research & Consulting
3773 Cherry Creek N. Drive, Suite 850
Denver, Colorado 80209-3868
303.321.2547 fax 303.399.0448
www.bbcresearch.com
bbc@bbcresearch.com

This study was financed in part through a planning grant from the National Park Service, United States Department of the Interior, under the provisions of the Land and Water Conservation Fund Act of 1965 (Public Law 88-578, as amended).

# Table of Contents

**California State Park System Report**

# The Economic Contribution and Benefits of Recreation in the California State Park System

## Introduction

This report documents the Economic Study on Outdoor Recreation in California (the Study) being conducted by a team led by BBC Research & Consulting (BBC) on behalf of the California State Parks Department of Parks and Recreation (CSP).

The purposes of this study were to quantify the economic contribution from visitation to (and operation of) the State Park System (SPS) and the economic benefits that California-residents obtain from their visits to the SPS. The estimated economic contribution and economic benefits were also examined by type of park unit (e.g., State Parks, State Beaches, State Historic Parks, etc.) and by region of the state. The fiscal contributions to the State of California and local government revenues were also analyzed and quantified.

The remainder of this report is divided into the following five sections:

- Overview of the SPS
- Economic contribution of SPS operations and visitation
- Comparison of economic contribution results to previous studies of the SPS
- Economic benefits provided by the SPS to California residents
- Summary of the SPS economic analysis

## Overview of the SPS

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.

The management approach for each unit is guided by the unit's classification (referred to as the "park type" in this report).[1] Each park type represents a group of units that are similar in terms of available activities and facilities. Figure 1 shows the distribution of the SPS park units by park type.

[1] Eleven classifications are formally defined by the California Resources Code, Section 5019.50 et seq.

**Figure 1.**
**SPS by Park Type**

Note:

No units were classified as State Cultural Reserves or Underwater Recreation Areas.

Source:

BBC Research & Consulting based on CSP FY08 Statistical Report.

| Park Type | Count |
|---|---|
| State Park (SP) | 87 |
| State Beach (SB) | 63 |
| State Historical Park (SHP) | 51 |
| State Recreation Area (SRA) | 32 |
| State Natural Reserve (SNR) | 17 |
| State Vehicular Recreation Area (SVRA) | 8 |
| State Historical Monument (SHM) | 1 |
| State Seashore (SS) | 1 |
| Wayside Campground (WC) | 1 |
| Park Property (unclassified) | 18 |
| **Total** | ***279*** |

For the purpose of this analysis, the study team divided California into the same 7 regions used by CSP when analyzing results from the Survey of Public Opinions and Attitudes on Outdoor Recreation (SPOA). These regions include the Central Coast, Central Valley, Los Angeles, Northern California, San Francisco Bay Area, Sierra and Southern California. Each region consists of multiple counties and each county falls entirely into one region. Appendix C lists the counties included in each region. Figure 2 identifies these regions and the number of park units located partially or entirely within each region.

**Figure 2.**
**California Regional Map**


Note: The boundaries of nine of the park units encompass land in more than one region — the sum across all regions equals 288 as a result.
Source: BBC Research & Consulting, 2010 based on FY08 Statistical Report.

CSP's annual Statistical Reports provide park unit-level visitation data for day trip visitors and for camping visitors.[2] The visitation counts represent single day use for individual day trip visitors and one night stays for individual campers. Thus, for example, the Statistical Report would count a group of 5 who are camping for 3 nights as 15 camping nights.

[2] Day trip visitors are separated into free day use and paid day use. This distinction is generally not important for this analysis.

In the FY08 Statistical Report, visitation data was available for 224 of 279 park units. BBC did not include park units without visitation in the analysis.[3] Figure 3 shows visitation by park type and region. 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. Also, data constraints restricted the analysis by park type to SBs, SHPs, SPs, SRAs and SVRAs.[4] Some of the park units with visitation data do not fall into one of these park types. Based on discussions with CSP staff, these units were assigned to one of the five park types that most closely reflects the nature of the facilities and activities at that park unit.

**Figure 3.**
**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.

[3] 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.

[4] As discussed in greater detail in Appendices A and B, BBC estimated visitor expenditures by park unit using data from the State Park Visitor Survey (SPVS). Park type is an input in the estimation approach; therefore, the analysis could only be applied to the five park types of the survey units.

SBs had the highest number of visits (almost 45 percent) followed by SPs (about 30 percent). 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.

This brief overview demonstrates the diversity and extent of the SPS in terms of recreational opportunities and locations. The next section describes the economic contribution of this system.

## Economic Contribution of SPS Visitation and Operations

The economic contribution from the SPS refers to the economic activity (e.g. sales, jobs and earnings) that directly and indirectly results from expenditures by individuals visiting park units (visitor expenditures) and by the State government to operate and maintain the park units (operating expenditures). This economic activity also has a fiscal impact in the form of visitor fees, concession rental income, sales and use tax revenues, and state income tax revenues.

The study team derived estimates of total visitor expenditures using data from the SPVS and Statistical Reports. The following two sections review these estimates.

**Visitor expenditure profiles.** During trips to SPS park units, visitors purchase a variety of goods and services such as overnight lodging, food, groceries and gasoline. The economic contribution of these purchases can be directly attributed to the existence of the SPS. Quantifying these visitor expenditures is a challenging task. The typical approach to quantifying visitor expenditures in similar studies relies on two general pieces of information:

1. Expenditure profiles for park visitors

2. Total number of visitors

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). Each park unit's expenditure profile reflects the average expenditures per visitor ***trip*** in 2008 dollars.[5] Thus, the expenditure profile for campers represents the expenditures for an average camper during their entire trip, potentially spanning multiple days in the park unit.

Appendix A provides a detailed review of the SPVS data and describes the development of the econometric model used to estimate expenditure profiles for each park unit. Figure 4 provides a summary of the estimated expenditure profiles for day trip visitors at individual park units by park type.

[5] The SPVS collected data between December 2007 and ending in the February 2009.

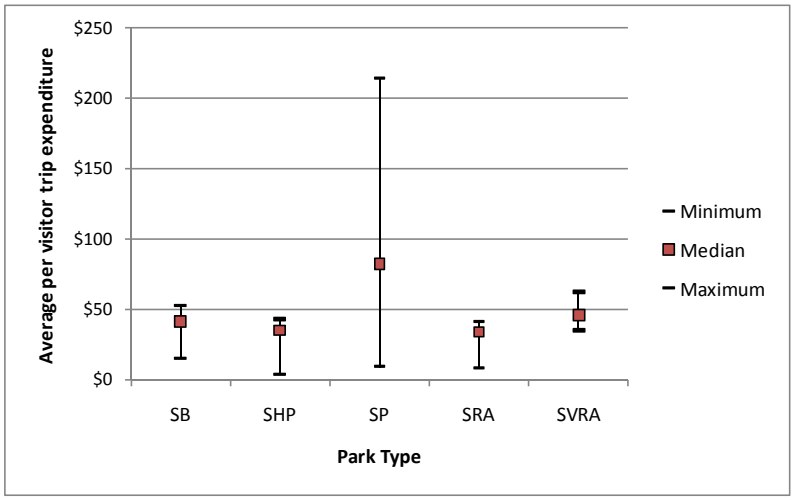
**Figure 4.**
**Park Unit-specific Expenditure Profiles for Day Trip Visitors (2008 dollars)**

Note:

The high maximum value for SPs ($214.24) represents the expenditure profile for Prairie Creek SP based on *actual* survey data from the SPVS. The highest *estimated* expenditure profile was $141.87.

Source:

BBC Research & Consulting, 2010 based on SPVS.




As shown in the figure, park unit-specific estimated trip expenditures for day trip visitors vary both within and across park types. The median represents the per visitor trip expenditure level which half of the park units, for the given park type, exceed. For example, half of the SPs were estimated to have average per visitor trip expenditures for day trip visitors that exceed $82.50.

Figure 5 summarizes the estimated expenditure profiles for camping visitors at individual park units by park type.

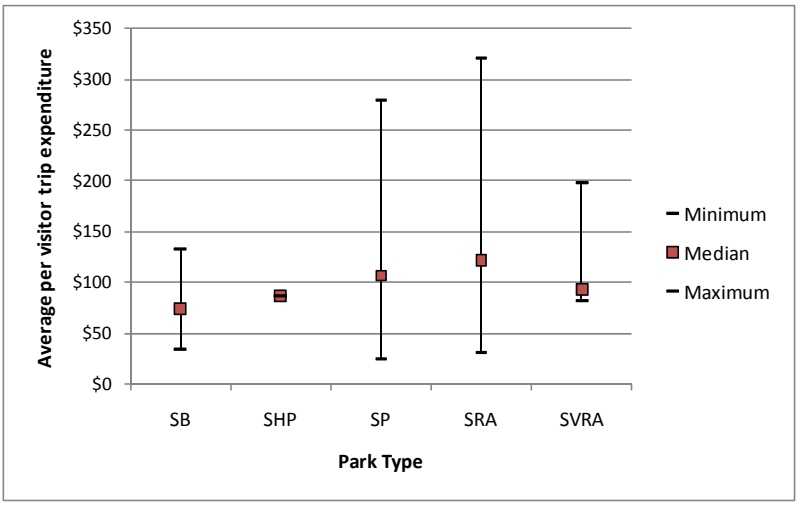
**Figure 5.**
**Park Unit-specific Expenditure Profiles for Camping Visitors (2008 dollars)**

Note:

For SHPs with camping, the overall average for camping expenditures was used because the SPVS did not include SHPs with camping facilities. Therefore, all SHPs were assumed to have the same average per camper trip expenditure.

Source:

BBC Research & Consulting, 2010 based on SPVS.




Of the 224 park units with visitation data, 93 do not have camping facilities and were excluded from the statistics shown in the figure. As with day trip estimated visitor trip expenditures, the park unit-specific expenditure profiles for camping visitors vary within and across park types. The median expenditure value for all park types is higher for campers compared to day trip visitors. In particular, the median park unit per visitor trip expenditure for campers at SRAs is about 3.5 times larger than for day trip visitors to SRAs. The higher expenditure levels for camping visitors reflect, in part, the multiple day duration of their visits.

**Total visitor expenditures.** 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).

Appendix B provides a detailed discussion of the steps taken to derive these estimates. Some of the key components of the estimation process included:

1. Visitation data for campers represented camping nights, but camper expenditure profiles reflect trip expenditures. Therefore, BBC converted camping nights into estimated camping trips based on park type-specific length of stay data from the SPVS. On average, camping visitors surveyed in the SPVS stayed for 3 nights. At SBs, overnight stays averaged 3.7 nights compared to 2.7 nights at SPs and SRAs.

2. Some trip expenditures may occur outside the region in which the park is located. The SPVS gathered information on visitor expenditures occurring more than 25 miles from the park. To account for the broader geographic distribution of these expenditures, BBC split these expenditures between the region where the park was located and the region where the visitors lived. Since specific origin-destination information was not available for the parks not included in the SPVS (most of the parks), BBC used the regional population distribution of the state as a proxy for visitor origin.

3. BBC disaggregated visitor expenditures into five spending categories based on data from the SPVS. These categories are defined as follows:

   - ***Lodging***: overnight lodging at motels, resorts and private campgrounds
   - ***Food***: food and beverages at restaurants and snack stands
   - ***Supplies***: such as groceries, film, bait, gifts, souvenirs, etc.
   - ***Gas***: gasoline, vehicle repairs, parking, toll fees and public transportation
   - ***Recreation***: recreation purchases; e.g., equipment rentals and tours

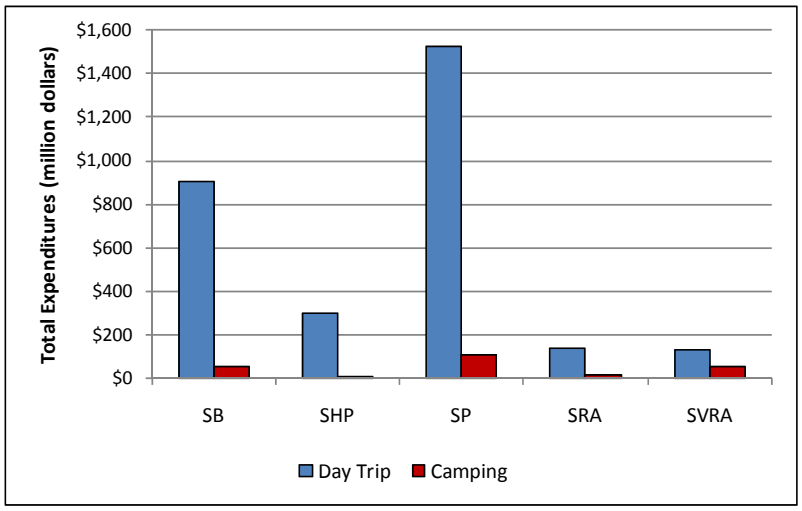
   Estimating expenditures by spending category helps identify the most affected sectors of the economy and increases the accuracy of the estimated indirect economic contribution from the SPS.

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.

Figure 6 shows total annual visitor expenditures by park type for day trip and camping visitors.

**Figure 6.**
**Total Annual Visitor Expenditures by Park Type (2008 dollars)**

Source:
BBC Research & Consulting, 2010.

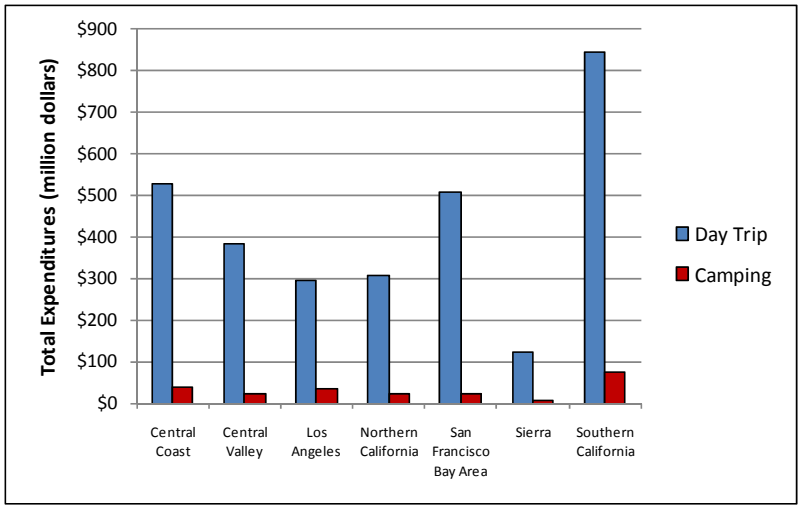



Although visitation to SPs accounts for only 30 percent of the total SPS visitation, just over 50 percent of the total visitor expenditures result from visits to SPs. Trips to SBs, SHPs, SRA and SVRA account for about 30 percent, 9 percent, 5 percent and 6 percent of total visitor expenditures, respectively. 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.

Figure 7 shows total annual visitor expenditures by region for day trip and camping visitors.

**Figure 7.**
**Total Annual Visitor Expenditures by Region (2008 dollars)**

Source:
BBC Research & Consulting, 2010.

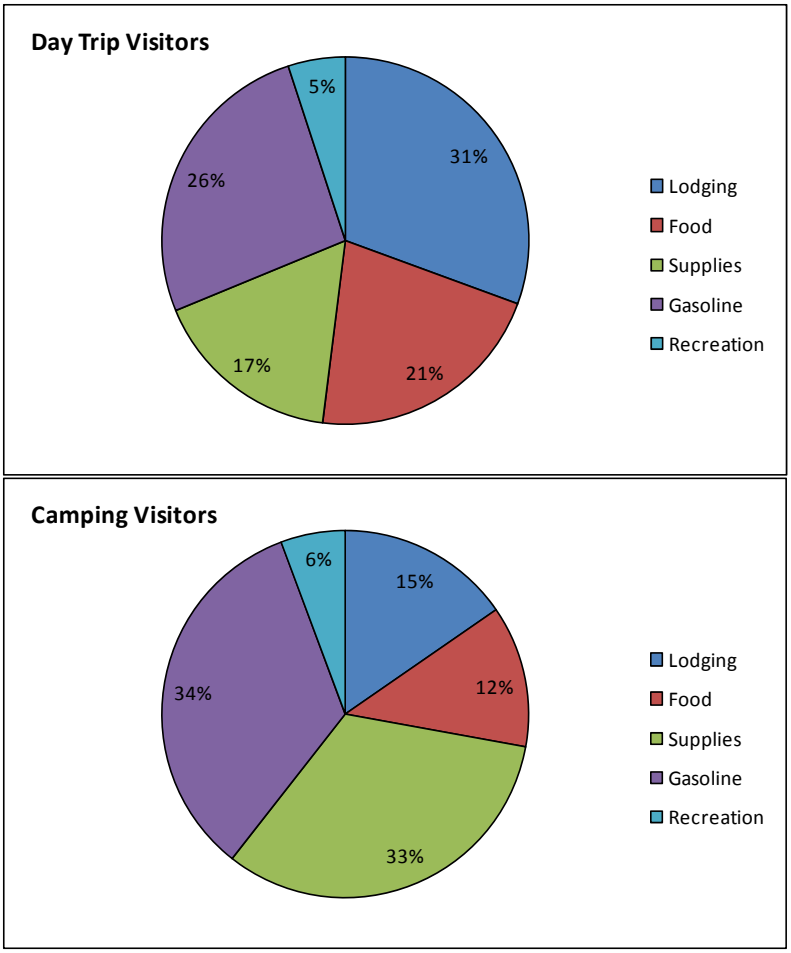



Approximately 30 percent of total annual visitor expenditures occur in the Southern California region. While this proportion is the highest among all the regions, it is below the region's share of total visitation (about 40 percent). In contrast, the Los Angeles region only attracts about 4 percent of 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 8 shows the distribution of total visitor expenditures by visitor type across the spending categories.

**Figure 8.**
**Total Expenditures by Spending Category**




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.

Figures B-8 and B-9 in Appendix B show the complete breakdown of the estimated total visitor expenditures by visitor type, park type, region and spending category.

**Operating expenditures.** Over the FY06-FY08 period, CSP spent an average of about $198 million per year for field operations of the SPS.[6]

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. Appendix B provides a detailed discussion of this estimation approach. Figure 9 summarizes the total operating expenditures by park type and region.

**Figure 9.**
**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 study team used the IMPLAN® input-output modeling system to estimate the economic contribution of the SPS. An input-output analysis estimates the overall economic impact (or contribution) on all industrial sectors that result from direct economic activity in one or more specific sectors. The overall economic contribution can be broken down into three categories — described below in the context of this study.

- ***Direct:*** the initial economic effects from SPS visitor expenditures and CSP operating expenditures. The purchase of gasoline as part of a trip to a SP would be an example of a direct effect.

[6] See CSP's FY06, FY07 and FY08 Statistical Reports. Field operations include park unit staff, equipment, utilities and supplies.

- ***Indirect***: the economic effects resulting from purchases of goods and services by directly affected industries from other firms. Wholesale purchases of food and other supplies by gasoline stations that directly service SPS visitors would an example of indirect effects.

- ***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.

These economic effects are described through various economic metrics including sales, value-added, employment and labor income. Sales is generally a measure of direct expenditures by visitors and for park operations, plus indirect and induced sales that result as dollars re-circulate throughout the economy. Value-added represents sales net of the costs of inputs. The combination of direct, indirect and induced effects is commonly referred to as the "multiplier" for a specific direct effect. The multiplier refers to the sum of direct + indirect + induced effects divided by the direct effect. For example, if the sum of direct, indirect and induced effects on sales was $2 million, and the direct effect was $1 million, the multiplier would be equal to two.

The total visitor expenditures and operating expenditures described in the previous two sections represent the direct economic effect from the SPS. BBC used these measures of direct effects as inputs for the IMPLAN model to generate estimates of the secondary (indirect and induced) economic effects.[7] IMPLAN also generated estimates of employment, labor income and value-added resulting from visitor and operating expenditures.

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

**Statewide results.** On average, during the FY06-FY08 period, SPS visitor and operating expenditures contributed approximately $6.8 billion in sales 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 effects can be attributed to expenditures by day trip visitors to the SPS.

[7] 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 five visitor expenditure spending categories and operating expenditures. For example, lodging expenditures are likely captured by IMPLAN Sector 411 Hotels and motels, including casino hotels. The crosswalk between spending categories and IMPLAN sectors is provided in Appendix D.

Figure 10 provides a summary of the statewide results.

**Figure 10.**
**Economic Contribution from the SPS - Statewide Results**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

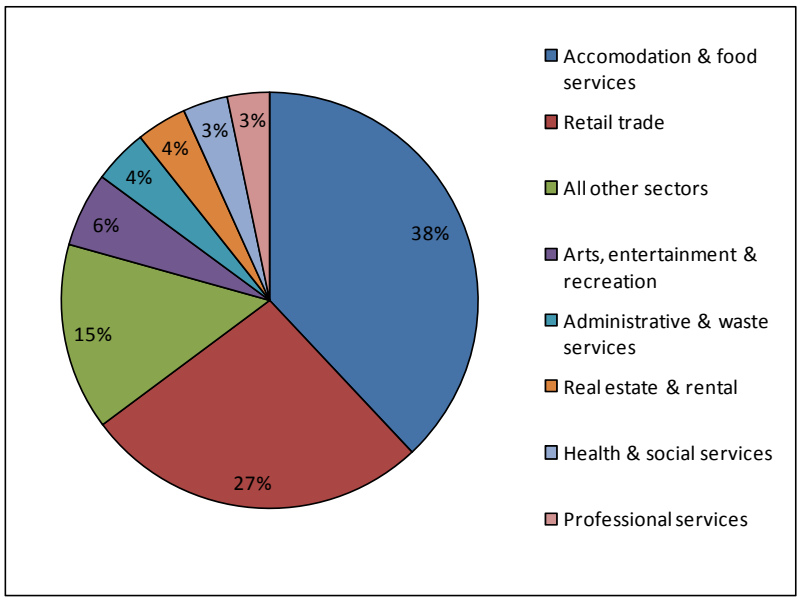
Note: All monetary figures are in 2008 dollars. Note that the metrics shown in this table (sales, value-added, etc.) reflect different metrics for measuring economic contribution and cannot be added to one another.

Source: IMPLAN, 2010.

Figure 11 shows the breakdown of the SPS employment contribution by industrial sector.

**Figure 11. Statewide SPS Employment Contribution by Industry**

Source:
IMPLAN, 2010.



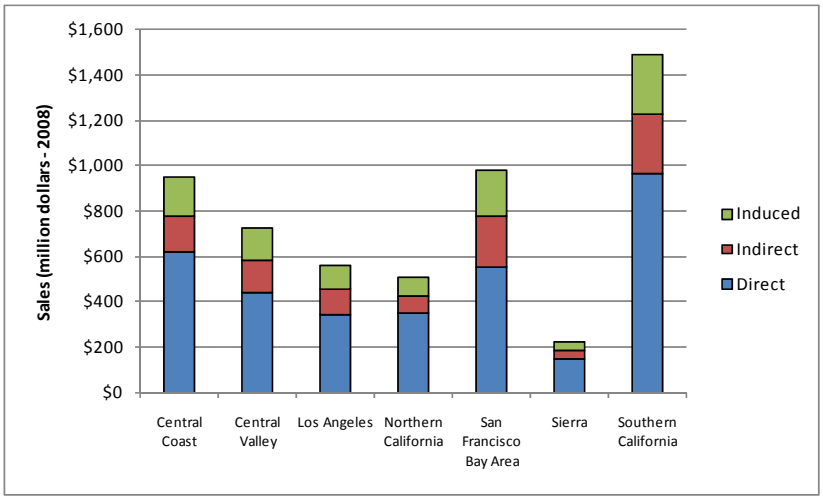

Approximately 38 percent of the employment generated by visitation to and operation of the SPS was in the accommodation and food services industry. The retail trade industry received about 27 percent of the jobs. The next largest employment share was about 6 percent for the arts, entertainment and recreation 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 12 shows the estimated effect on total sales for each region.

**Figure 12. 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 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 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.

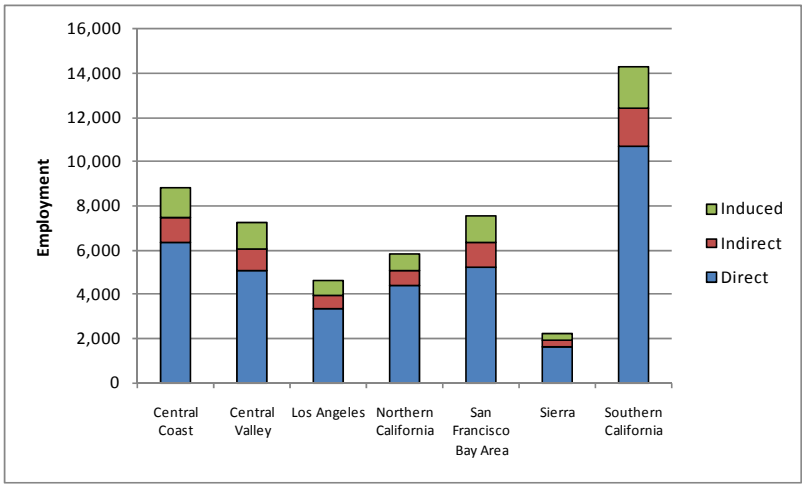
In 2008, the Southern California region received at least $1.5 billion in sales as a result of visitation to and operations of the SPS — about 50 percent more than any other region. The SPS contributed at least $225 million in sales to the Sierra region, which was the smallest regional effect from the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

Figure 13 shows the SPS' contribution to employment by region.

**Figure 13.**
**Economic Contribution from the SPS – Employment by Region**

Note:
These estimates represent a lower bound.

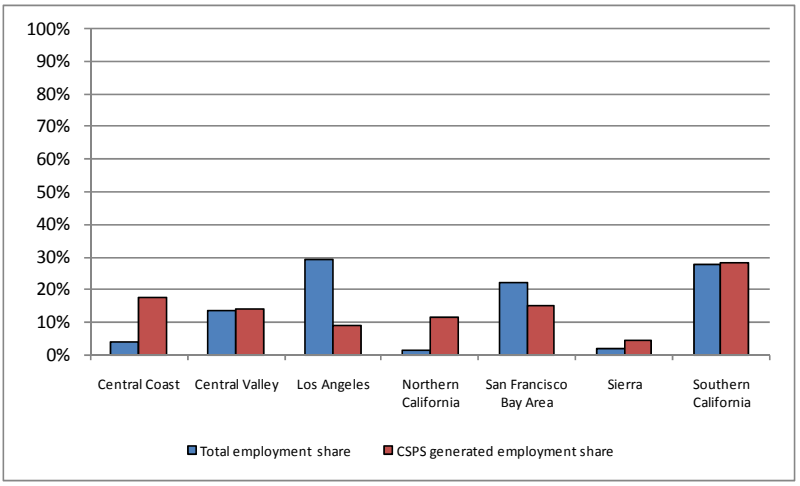
Source:
IMPLAN, 2010.




The distribution of SPS-related employment effects across the regions is generally similar to the distribution of total sales from the SPS. However, the distribution of SPS-related jobs across California is substantially different from the distribution of overall employment across the state. Figure 14 compares each region's share of all jobs in California to the region's share of jobs generated by the SPS.

**Figure 14. Employment Shares – Total verses SPS Generated**

Source:
IMPLAN, 2010.



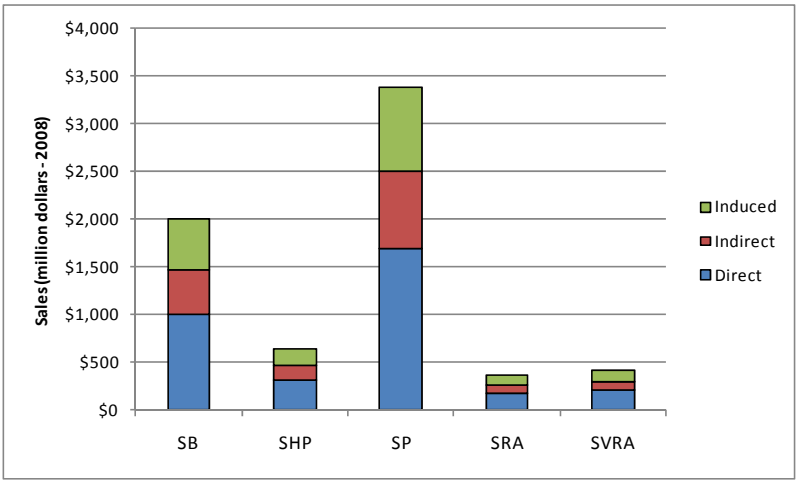

As shown in this figure, while the Central Coast region employed about 4 percent of the California workforce, about 17.5 percent of the jobs generated by the SPS in California were located in that region. A similar relationship was also apparent in the Northern California region (only 1.5 percent of overall statewide employment but 11.5 percent of the jobs generated by the SPS). Alternatively, the Los Angeles region employed almost 30 percent of the total California workforce, but only 10 percent of the statewide jobs generated by the SPS were located in the Los Angeles region.

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 is provided in Appendix E.

**Results by park type.** This section discusses the economic contribution from the SPS by park type. The relative overall economic contribution for park types parallels the distribution of visitor and operating expenditure discussed previously. Figure 15 shows the estimated total sales attributable to the five park types analyzed.

**Figure 15. Economic Contribution from the SPS – Sales by Park Type**

Source:
IMPLAN, 2010.

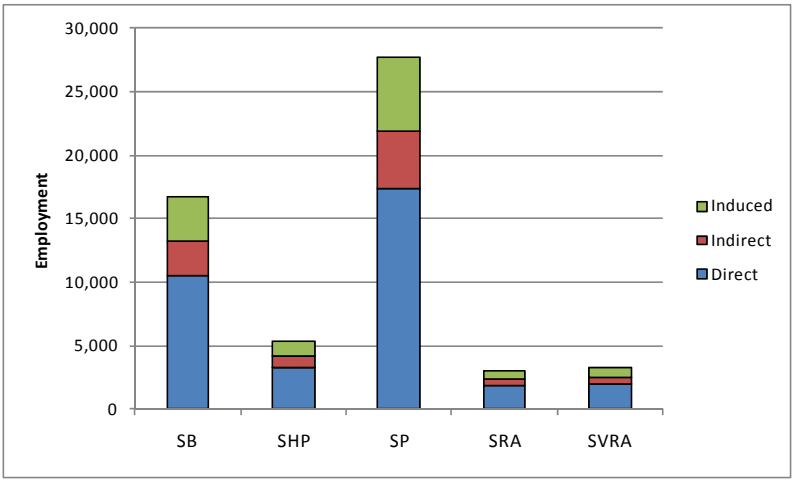


Visitation to and operation of SP units contributed about $3.4 billion in total sales to the California economy in 2008. SRA units generated the lowest level of total sales among the park types, but still contributed about $370 million.

Figure 16 shows the SPS' contribution to employment by park type.

**Figure 16. Economic Contribution from the SPS – Employment by Park Type**

Source:
IMPLAN, 2010.

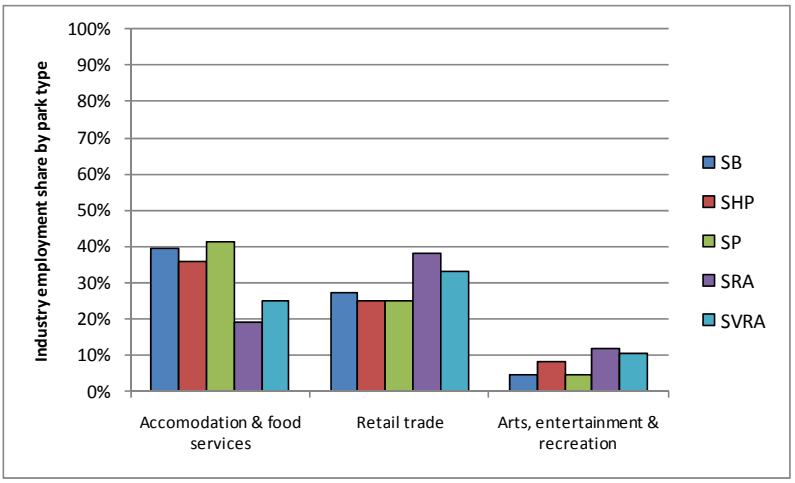



SP units generated a total of approximately 27,700 jobs, including about 17,400 jobs supported by direct expenditures. Visitation to and operations of SB units also support a relatively large number of jobs – about 16,700.

Spending category patterns vary across park types. As a result, the relative economic contribution to specific industrial sectors also differs. Figure 17 shows the employment shares of three sectors for each park type and demonstrates the different employment effects each park type generates.

**Figure 17. Employment Shares for Select Industries (by park type)**

Source:
IMPLAN, 2010.



SBs, SHPs and SPs had a relatively larger effect on employment in the accommodation and food services industry, whereas the economic contribution of SRAs and SVRAs was more concentrated on the retail trade industry. These differences reflect SRA and SVRA visitors' relatively larger expenditure shares on gasoline and supplies.

A more detailed summary of the economic contribution for each park type is provided in Appendix F.

**Fiscal Effects from the SPS.** As discussed previously, CSP spent an annual average of about $198 million for field operations of the SPS during the FY06-FY08 period. While this figure represents a substantial expenditure of public funds, the SPS generates a large amount of revenues for both the state government and local governments throughout California.

Figure 18, on the following page, summarizes the estimated average annual revenues that the State of California and California cities and counties received due to visits to the SPS. The SPS generated an average of almost $85 million per year in user fees, concession rentals and miscellaneous revenues.[8] As discussed previously, the economic activity that resulted from visitation and operating expenditures led to an estimated annual average of over $2.3 billion in labor income in California. These employee earnings, in turn, correspond to an estimated annual average of almost $54 million in state income tax revenues. SPS visitation also generated, directly and indirectly, over $1.6 billion in annual retail sales. These sales produced an estimated annual average of about $150 million in state sales and fuel tax revenues and about $53 million in sales and use tax revenues for local governments. Most local governments in California also tax lodging at hotels and motels. Visits to the SPS generated an annual average of over $90 million in local government revenues through transient lodging taxes.

Overall, the SPS generated an annual average of almost $290 million in state tax revenues and about $145 million in local tax revenues. In combination, these government revenues are more than double the annual cost of SPS field operations to the state treasury.

[8] See CSP's FY06, FY07 and FY08 Statistical Reports.

**Figure 18.**
**Average Annual State and Local Government Revenues from SPS Visitation and Operations (FY06-FY08 period)**

| Revenue Sources | |
|---|---|
| **State Revenues** | |
| **Direct State Revenues from the SPS ($ millions)*** | |
| User Fees | $73.1 |
| Concession Rentals | $11.3 |
| Miscellaneous | $0.5 |
| *Total Direct State Revenues from Operations* | *$84.8* |
| **State Income Taxes Generated by the SPS ($ millions)** | |
| Total Labor Income | $2,324 |
| State Income Taxes Relative to Total Income** | 2.32% |
| *State Income Taxes Generated* | *$53.9* |
| **Sales and Use Taxes Generated by the SPS ($ millions)** | |
| Retail Sales Resulting from SPS Operations | $1,626 |
| Restaurant Food and Beverage Sales | $718 |
| Total Taxable Sales | $2,344 |
| Composite State Sales/Use/Fuel Tax Rate | 6.40% |
| *Total State Sales/Use/Fuel Tax Revenues* | *$150.0* |
| **Combined State Revenues from the SPS ($ millions)** | **$288.7** |
| **Local City and County Revenues from the SPS** | |
| **Local Sales/Use Tax Revenues ($ millions)** | |
| Composite Local Sales/Use Tax Rate | 2.25% |
| *Total Local Sales/Use Tax Revenues* | *$52.7* |
| **Transient Lodging Tax Revenues ($ millions)** | |
| Total Expenditures on Lodging | $1,021 |
| Local Transient Lodging Tax (average rate) | 9% |
| *Local Transit Lodging Tax Revenues* | *$91.9* |
| **Local Sales/Use and Lodging Tax Revenues Generated by the SPS ($ millions)** | **$144.6** |
| **Combined State and Local Revenues from SPS Operations ($ millions)** | **$433.3** |

Note: *State of California income tax rates ranged from 1 percent to over 9 percent in 2008. However, when these rates were applied to taxable income (net of deductions) the average effective tax rate relative to gross income from all sources was 2.32 percent.
**Based on comparison of 2008 labor income for California with state personal income tax receipts.

Source: BBC Research & Consulting, 2010.

**Economic contribution summary.** Visitation to and operation of the SPS resulted in an annual average of about $3.4 billion in direct expenditures during the FY06-FY08 period. Overall, these expenditures contributed an estimated $6.8 billion in annual total sales and supported about 56,000 jobs in California. This economic activity generated about $290 million in state government revenues and $145 million in local government revenues.

The economic contribution for the SPS reached across all regions of the state. However, the Southern California region experienced the largest contribution including $1.5 billion in total sales and about 14,250 jobs. Visitation to SPs produced about half of the economic activity generated by the SPS. This contribution is a result of both high visitation to SPs and also relatively high expenditures per visitor day at those SPS units.

**Caveats and limitations.** This section identifies some of the key caveats and limitations of the SPS economic contribution analysis.

**Interpretation.** This analysis estimated the economic ***contribution*** of visitation to and operation of the SPS. However, if the SPS did not exist, some portion of the visitor expenditures attributed to the SPS would likely still be spent in California. For example, if visiting a SB 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 at SPS facilities, it is likely that more recreation expenditures would be diverted to other states.

**Excluded expenditures.** BBC developed the estimates described in the previous sections using the best available data related to the SPS. However, not all the expenditures related to the SPS were captured in this analysis, including:

- As noted previously, CSP's Statistical Reports did not include visitation data for 55 SPS units. These units were excluded from the analysis.

- The analysis only includes expenditures for field operations of the SPS. Capital costs and central administrative costs for the SPS were not included in this analysis.

- Visitors to SPS units purchase equipment for the specific activities they participate in during their visit. These items range from hiking boots to surfboards to ATVs, just to name a few. Since these items are used during SPS visits, a portion of the expenditures for these items also represent an economic contribution from the SPS. However, identifying a reasonable estimate for these expenditures attributable to SPS visitation was not feasible for multiple reasons. Most critically, comprehensive data on the equipment used at park units is not available. Furthermore, visitors likely use this equipment on multiple occasions and at locations other than SPS units.

**SPVS and multiple entry.** Expenditure profiles for day trip visitors represent total per visitor expenditures for a one day visit to the park unit. This definition is consistent with the way the Statistical Reports count day trip visitation (each day a visitor enters the park unit counts as one day trip visit). Since SPVS did not identify respondents who would be visiting the same park unit on consecutive days, BBC assumed all non-camping respondents were day

trip visitors and visited the park unit only once. However, it is possible that some respondents visited the park unit on consecutive days. Therefore, the expenditure profiles for day trip visitors may overestimate actual per day expenditures.

## Comparison of Economic Contribution Results to Previous Studies

The economic contribution (or impact) of SPS visitation has been studied on three previous occasions.

The first, and most comprehensive, previous study was produced in October 1995. ***The Impact on Local Economies of Spending by Visitors to California State Parks*** was based on a combination of park visitation data with surveys of the expenditures of visitors to eight park units during 1991-1992. Estimated direct visitor expenditures for transportation, food, lodging and other goods and services were combined with an economic impact model developed by George Goldman of the Agricultural Economics Department at the University of California Berkeley. The 1995 study included detailed estimates of the impact of expenditures from non-local visitors for each of the eight parks where visitors were surveyed, but also provided an estimate of the economic activity supported by all SPS visitors (local and non-local) across the system as a whole. The latter estimates are directly comparable with the economic contribution estimates provided in our current study, although the economic benefits arising from SPS operating expenditures were not quantified in the 1995 study.

In 2001, the CSP produced an update to the 1995 analysis entitled ***Economic Impacts on Local Economies by Visitors to California State Parks from 1999-2002.*** This report used the visitor expenditure data from the 1995 study (updated for inflation) in conjunction with more recent visitation data. The update also used the same economic impact multipliers developed for the 1995 study. The 2001 study included estimates of economic contribution based on actual visitation for 1999-2000 and projections of the future economic contribution in 2001-2002 following a planned fee-reduction for park admissions.

In 2002, a second update of the original economic study was performed by JKInc. on behalf of the CSP. This study, entitled ***The Economic Impact of State Parks on California's Economy: Final Report***, was similar to the 2001 study in continuing to make use of the visitor expenditure data and economic multipliers developed for the 1995 study. However, the 2002 study expanded the scope of the prior analyses by providing estimates of the fiscal contribution to the State of California resulting from the SPS.

Key data and results from the previous studies can be compared to the current study described in this section. Figure 19 provides a comparison of annual visitation, and visitor expenditures, between the three previous studies and the current study. From the 1991-92 fiscal year that provided the data for the 1995 study to the three year average used in the current study, annual visitation to SPS increased from about 65 million visitors to nearly 78 million visitors. However, the 2002 study indicates that visitation may have peaked in about 2001-2002 when 85 million people reportedly visited the SPS.

The results of the current study indicate average expenditures of $41.47 per visitor day to the SPS. This figure is a substantial increase from the estimated expenditures per visitor day in 1991-92 from the 1995 study ($24.64). This increase primarily reflects the effects of inflation over the nearly two decades between the two studies. As noted earlier, the expenditure per visitor day estimates used in

the 2001 and 2002 studies were based on actual data from 1991-92 adjusted for estimated inflation during the interim.

**Figure 19. Comparison of Visitation and Visitor Expenditures in SPS Studies (data as presented in the original studies, not adjusted for inflation).**

| | Study | | | |
|---|---|---|---|---|
| **Comparative Statistics** | **1995** | **2001*** | **2002** | **BBC 2010** |
| Data Year | 1991-92 | 1999-00 | 2001-02 | 2008** |
| Visitation (millions) | 65.2 | 71.0 | 85.2 | 77.6 |
| Visitor Expends ($ millions) | $1,607 | $2,035 | $2,600 | $3,218 |
| Expends per Visitor Day | $24.64 | $28.65 | $30.52 | $41.47 |
| Average Annual Increase in Expenditures per Visitor from 1995 Study | | 1.9% | 2.2% | 3.1% |

Note: *Data from 2001 update reflects actual information for year prior to fee reduction, not projected data for the year following the fee reduction.

Source: CSP and BBC Research & Consulting, 2010.

Figure 20 provides a comparison of estimated statewide, total visitor expenditures across the four studies. The table also compares estimates of the annual statewide total sales and jobs resulting from the SPS, as well as the sales multiplier and jobs multiplier used in each study. The 1995 study estimated about $4.1 billion in statewide sales resulting from SPS visitor expenditures, while the current study estimates the statewide economic contribution of the SPS to be about $6.8 billion. Similar to the change in visitor expenditures per day discussed previously, much of this difference reflects the effects of inflation. The estimated economic contribution of SPS activity on statewide employment in the current study (55,912 jobs) is slightly lower than the estimated job effects from the 1995 study (62,235 jobs).

Sales multipliers reflect the ratio of total sales (including secondary effects) to direct sales. The sales multiplier in the current study, based on the IMPLAN model, averages 2.00 – which is lower than the sales multiplier used in the 1995 study (2.56). The more striking difference is in the jobs multiplier (which reflects the number of jobs supported per $1 million in total sales). The current study reflects an average jobs multiplier of 8.2 compared with 15.1 used in all three previous studies. The difference in the jobs multiplier between the 1995 study and the current one is again mostly attributable to inflation – simply put, employees cost nearly twice as much in 2008 as they did in 1991-92 so fewer can be hired for the same amount of money. The two interim studies erred in incorporating the jobs multiplier from the 1995 study without adjusting for inflation, and consequently overestimated the employment contribution from the SPS.

**Figure 20. Comparison of Statewide Economic Contribution Estimates in California State Park System Studies**
**(data as presented in the original studies, not adjusted for inflation).**

| | Study | | | | |
|---|---|---|---|---|---|
| **Comparative Statistics** | **1995** | **2001*** | **2002** | | **BBC 2010** |
| Data Year | 1991-92 | 1999-00 | 2001-02 | | 2008** |
| Visitor Expends ($ millions) | $1,607 | $2,035 | $2,600 | | $3,218 |
| Park Operating Expenditures ($ millions) | NA | NA | $227 | | $198 |
| | $1,607 | $2,035 | $2,827 | | $3,416 |
| Total Sales (including secondary effects) | $4,119 | $5,217 | $6,650 | *** | $6,833 |
| Sales Multiplier | 2.56 | 2.56 | 2.35 | *** | 2.00 |
| Total Jobs Supported | 62,235 | 78,831 | 100,000+ | *** | 55,912 |
| Job Multiplier (Jobs per $1 million in total sales) | 15.1 | 15.1 | 15.1 | | 8.2 |

Note: *Data from 2001 update reflects actual information for year prior to fee reduction, not projected data for the year following the fee reduction.
**Based on three year average of 2006-07, 2007-08 and 2008-09 data.
***Unclear from 2002 report whether total economic sales and job estimates include effects of park operating expenditures.

Source: CSP and BBC Research & Consulting, 2010.

As mentioned earlier, the 2002 study was the first to provide fiscal impact information related to the SPS. That study noted that "For every dollar spent on California State Parks, a conservative estimate is that $2.35 is returned to the California State's General Fund from spending in the local communities."[9] While this estimated rate of return to the state treasury is considerably higher than the estimate developed in our current study (which is approximately $1.46 per dollar), it is comparable to the overall fiscal rate of return when local government revenues are also included..

In sum, the three prior studies and the current study provide a generally consistent profile of the economic contribution of the SPS. Compared to the original 1995 study, visitation has increased, expenditures per visitor day have increased (mostly due to inflation) and total sales have increased. The lower multipliers used in the current study result in somewhat lower estimated job estimates in the current study than in the 1995 study, despite the increases in visitation and total visitor expenditures. The estimated job effects from the two updates to the 1995 study performed in 2001 and 2002 are considerably higher than those estimated in the current study, mostly due to not adjusting the job multiplier from the original study for inflation.

[9] JKInc., ***The Economic Impact of State Parks on California's Economy: Final Report***, page 5.

## Economic Benefits

The economic benefit of recreation is a different concept from the economic contribution (or economic impact) of recreation activities. The preceding portions of this report have focused on the economic contribution of recreation activities that result from spending by SPS visitors and CSP expenditures for SPS operations, and the recirculation of those dollars regionally and statewide. This section, however, considers the value of the recreation experience at SPS units to the visitors themselves.

As discussed in the Literature Review, 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).

**Primary activities of SPS visitors.** The economic benefits analysis combines two categories of information — estimates of recreation participation by activity-type and estimates of the corresponding value that participants receive from each day of participation in a particular activity.

The SPVS provided data on the primary activity that visitors to the SPS participated in during their visit. As discussed in detail in Appendix A, this data encompassed more than 9,600 survey respondents (representing more than 43,000 overall visitors). 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, separated between day users and campers. For purposes of this analysis, we aggregated the 65 primary activity codes from the SPVS into a total of 33 activity categories. Figure 21 depicts the distribution of primary activities among visitors to each park type, focusing on the most common primary activities. The figure also shows the differences in the distribution of common primary activities between day users and campers at each type of park.

The most frequent activities for each park type are highlighted in the figure. Not surprisingly, the most common primary activities at SBs are relaxation, beach play, swimming and walking for pleasure. SHPs focus more on historical tourism and school and educational activities. Hiking is the most common primary activity among SP day users, while SRAs focus more on fishing, boating and picnicking. Off-road motorized activities (which includes four wheel drive vehicles, ATVs, dune buggies and the like) are the primary focus of visitors to SVRAs. Among those who camp at SPS units, camping is typically the primary activity that motivates their visit – except for campers at SVRAs, who primarily focus on off-road activities during their camping visit.

**Figure 21.**
**Distribution of Most Common Primary Activities by Park Type: Day Users and Campers**

| | Day Users | | | | | Campers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Primary Activities** | **SB** | **SHP** | **SP** | **SRA** | **SVRA** | **SB** | **SHP** | **SP** | **SRA** | **SVRA** |
| Basic Snow Activities | 0.0% | 0.0% | 5.6% | 0.0% | 0.0% | 0.0% | NA | 0.0% | 0.0% | 0.0% |
| Camping | 3.4% | 0.1% | 0.7% | 0.1% | 1.0% | **58.5%** | NA | **34.4%** | **65.6%** | **9.2%** |
| Off-Highway Vehicles | 0.0% | 0.0% | 0.1% | 1.8% | **72.5%** | 0.0% | NA | 0.5% | 0.1% | **79.6%** |
| Boating/Jetskiing | 0.1% | 0.0% | 0.0% | **8.2%** | 0.0% | 0.0% | NA | 0.2% | **8.5%** | 0.0% |
| Historical Tourism | 0.0% | **22.2%** | 0.7% | 0.3% | 0.0% | 0.0% | NA | 0.1% | 0.1% | 0.1% |
| School & Educational | 3.4% | **24.9%** | 2.3% | 1.9% | 0.0% | 2.0% | NA | 2.2% | 0.0% | 0.3% |
| Fishing | 1.8% | 0.0% | 0.8% | **16.4%** | 0.0% | 0.3% | NA | 0.7% | **6.9%** | 0.0% |
| Nature Walks/Wildlife | 0.3% | 1.4% | 5.8% | 0.4% | 0.0% | 0.0% | NA | 0.8% | 0.1% | 0.0% |
| Surfing/Windsurfing | 6.4% | 0.0% | 0.0% | 0.2% | 0.2% | 0.0% | NA | 0.0% | 0.0% | 0.0% |
| Picnicking | 3.0% | 5.2% | **7.6%** | **21.5%** | 0.5% | 0.3% | NA | 0.7% | 0.0% | 0.0% |
| Beach & Tide Pools | **17.2%** | 0.0% | 5.9% | 1.4% | 3.0% | **10.2%** | NA | 3.8% | 0.1% | 1.2% |
| Swimming/Other Water | **12.4%** | 0.0% | 2.5% | 6.7% | 0.7% | 0.0% | NA | 7.6% | 2.7% | 0.1% |
| Hiking & trails | 0.1% | **28.1%** | **34.7%** | 3.7% | 0.0% | 0.1% | NA | **16.4%** | 3.3% | 0.0% |
| Walking for pleasure | **13.8%** | 3.9% | **8.9%** | 4.6% | 2.3% | 3.1% | NA | 0.7% | 0.6% | 0.4% |
| Relaxing/Stargazing | **20.4%** | 4.6% | **9.4%** | **15.1%** | 4.8% | **23.8%** | NA | **23.9%** | **7.0%** | 5.4% |
| All Others | 17.8% | 9.4% | 20.6% | 17.8% | 15.1% | 1.5% | NA | 7.9% | 4.9% | 3.8% |

Note: NA: not applicable since the SPVS did not include SHPs with camping facilities.

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

The study team combined the analysis of the frequency of primary activities by park type (and day users versus campers) from the SPVS with visitation data from the Statistical Reports to estimate the total number of activity days for each primary activity category for each park unit.[10] The annual activity days for each primary activity were then summed across all SPS units. Figure 22 shows the estimated total annual activity days by activity for the SPS. As discussed previously, 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 earlier in this report, 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.

[10] As in the economic contribution analysis described earlier in this section, only park units with reported visitation data in the Statistical Reports were included.

**Figure 22.**
**Annual Primary Activity Days at SPS Facilities**

| Primary Activities | Annual Days | Primary Activities | Annual Days |
|---|---|---|---|
| Relaxing/Stargazing | 11,117,000 | Jogging/Running | 885,000 |
| Hiking & trails | 10,693,000 | Games | 715,000 |
| Beach & Tide Pools | 7,097,000 | Boating/Jetskiing | 691,000 |
| Walking for pleasure | 6,938,000 | Photography | 645,000 |
| Swimming/Other Water | 4,972,000 | SCUBA/Snorkeling | 234,000 |
| School & Educational | 4,338,000 | Backpacking | 224,000 |
| Camping | 4,265,000 | Motorcycling/Scooters | 197,000 |
| Picnicking | 4,230,000 | Rollerblading | 185,000 |
| Off-Highway Vehicles | 3,344,000 | Bird Watching | 157,000 |
| Historical Tourism | 2,493,000 | Horseback Riding | 153,000 |
| Surfing/Windsurfing | 2,021,000 | Float Activities | 140,000 |
| Fishing | 1,702,000 | Geocaching/GPS | 95,000 |
| Road Biking | 1,463,000 | Water Skiing/Wakeboarding | 50,000 |
| Nature Walks/Wildlife | 1,460,000 | Skiing | 35,000 |
| Wildflowers/Other Nature | 1,172,000 | Sailboating | 6,000 |
| Basic Snow Activities | 1,145,000 | Other Recreation | 3,689,000 |
| Mountain Biking | 1,037,000 | | |
| **Total Primary Activity Days** | | | **77,588,000** |

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

**Economic benefits per visitor day for activities at SPS units.** The second part of the benefits equation is the value of participation (per visitor, per day) by activity type. As discussed in the Literature Review, 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;
- 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.

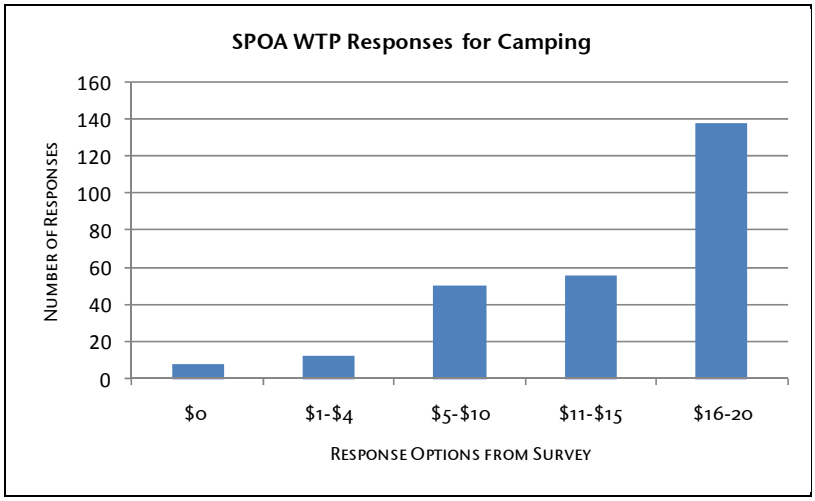
As discussed in the Literature Review, the advantage of the willingness-to-pay results from the SPOA survey is that the survey specifically seeks to capture the value that Californians place on participating in various recreational activities. One disadvantage of the SPOA willingness-to-pay survey results, 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 23, 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 SPS units. Finally, the

SPOA is a general survey of Californians and includes those who actually choose to visit the SPS and those who do not. For all of the reasons just described, the study team believes the SPOA willingness-to-pay survey results are likely to underestimate the economic benefits from activities in the SPS and may be considered to provide a lower bound estimate of the aggregate benefit value.

**Figure 23.**
**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, 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 in the SPS. 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 visitation in the SPS.
- A number of primary activities common in the SPS are not included in the USFS benefits estimates (such as road biking, walking for pleasure and surfing). This required assigning these activities to the USFS categories of general recreation or other recreation (or, in the case of surfing, to windsurfing).
- 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 are likely to overstate the economic benefits of recreation in the SPS or may provide an upper bound estimate of the aggregate annual benefit value in the SPS.

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.[11] 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 SPS facilities and 55 out of 100 points for specialized recreation at 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.[12]

Figure 24, on the following page, depicts the estimated economic benefits per visitor per day (in 2008 dollars) for each primary activity category at the SPS units. 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.

[11] 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.

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

**Figure 24.**
**Estimated Benefits per Day from Alternative Sources for Primary Activities at SPS Units (2008 dollars)**

| | Benefits per Day | | |
|---|---|---|---|
| **Primary Activities** | **USFS** | **Corps UDV** | **SPOA** |
| Horseback Riding | $20.66 | $22.29 | $14.26 |
| Sailboating | $115.04 | $22.29 | $13.75 |
| Skiing | $35.77 | $22.29 | $13.72 |
| Basic Snow Activities | $40.01 | $9.05 | $13.72 |
| Camping | $42.40 | $22.29 | $13.64 |
| Off-road Motorized | $26.13 | $22.29 | $12.63 |
| Boating/Jetskiing | $52.75 | $22.29 | $11.00 |
| Water Skiing/Wakeboarding | $55.88 | $22.29 | $11.00 |
| Backpacking | $59.39 | $22.29 | $9.99 |
| Historical Tourism | $6.85 | $22.29 | $9.41 |
| School & Educational | $6.85 | $9.05 | $9.13 |
| Float Activities | $53.76 | $22.29 | $9.09 |
| Fishing | $38.18 | $22.29 | $8.57 |
| Motorcycling/Scooters | $67.52 | $9.05 | $6.90 |
| Mountain Biking | $84.11 | $22.29 | $5.99 |
| Bird Watching | $33.74 | $9.05 | $5.98 |
| Nature Walks/Wildlife | $48.29 | $9.05 | $5.98 |
| Wildflowers/Other Nature | $42.00 | $9.05 | $5.98 |
| Surfing/Windsurfing | $55.52 | $22.29 | $5.61 |
| Photography | $42.00 | $9.05 | $5.07 |
| Picnicking | $47.27 | $9.05 | $4.87 |
| Beach & Tide Pools | $44.95 | $9.05 | $4.73 |
| Swimming/Other Water | $48.66 | $9.05 | $4.73 |
| SCUBA/Snorkeling | $34.55 | $22.29 | $4.73 |
| Rollerblading | $55.52 | $9.05 | $3.77 |
| Hiking & trails | $35.16 | $9.05 | $3.71 |
| Road Biking | $55.52 | $9.05 | $2.95 |
| Games | $40.01 | $9.05 | $1.97 |
| Jogging/Running | $55.52 | $9.05 | $1.97 |
| Walking for pleasure | $40.01 | $9.05 | $1.97 |
| Relaxing/Stargazing | $40.01 | $9.05 | $5.57 |
| Geocaching/GPS | $35.16 | $9.05 | $5.57 |
| Other Recreation | $55.52 | $9.05 | $5.57 |

Source: BBC Research & Consulting 2010.

**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 is 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 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 25 summarizes the estimated average annual economic benefits that California residents received from recreating at SPS units by type of park. 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.

It is important to recall that these estimated benefits are over and above the direct expenditures of the SPS visitors to visit the parks (and the economic contribution of visitation discussed previously in this report).

**Figure 25.**
**Estimated Annual Recreation Benefits of the SPS by Park Type**
**(in millions of 2008 dollars)**

| | Benefit Value Estimates Basis | | | |
|---|---|---|---|---|
| Park Type | USFS | Corps UDV | SPOA | Average |
| State Beaches | $1,371 | $348 | $170 | $630 |
| State Historic Parks | $240 | $117 | $64 | $140 |
| State Parks | $868 | $223 | $116 | $402 |
| State Recreation Areas | $251 | $80 | $38 | $123 |
| State Vehicular Recreation Areas | $124 | $77 | $44 | $82 |
| Total CSPS | $2,853 | $846 | $433 | $1,377 |

Source: BBC Research & Consulting, 2010.

Figure 26 provides a similar summary of the estimated average annual economic benefits to California visitors to the SPS by the regions in which the park units are located. Regardless of which source of benefit values is used, the parks in the Southern California region produce the largest annual economic benefit for California visitors. This result simply stems from the larger visitation levels at those facilities compared to park units in the other regions.

**Figure 26.**
**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 CSPS | $2,853 | $846 | $433 | $1,377 |

Source: BBC Research & Consulting, 2010.

**Benefits summary.** California residents spend more than 70 million days a year enjoying recreation activities at SPS facilities. The park visitors receive substantial benefits from the recreation opportunities that the SPS provides, above and beyond the costs they incur to recreate. The economic benefits of SPS recreation can be estimated, in monetary terms, based on several sources that provide economic values for daily participation by type of activity. These sources, however, provide a wide range of value estimates for the types of recreation activities enjoyed at SPS units. Estimates of the total annual recreation benefits Californians receive from their visits to the SPS range from about $433 million to over $2.8 billion, though the true economic value is believed to be substantially greater than the lower end of the range and lower than the upper end of the range. Averaging the three sources of benefit values suggest the benefit that Californians receive from the SPS may be almost $1.4 billion per year.

## Summary of the SPS Economic Analysis

This study demonstrates the value of the SPS in terms of the both its economic contribution and economic benefit. Over the FY06-FY08 period, the SPS annually hosted approximately 77.6 million visitor days, which generated an average of $3.2 billion in annual visitor expenditures. Including the annual average SPS operating expenditures of almost $200 million and secondary effects resulting from recirculation of visitor and operating expenditures throughout the economy, the SPS' annual average economic contribution to the California economy was about $6.8 billion in total sales and 56,000 jobs. This economic activity also generated about $410 million in state government revenues and $140 million in local government revenues, returning over two dollars to the State treasury for each dollar spent on operating and maintaining the SPS.

The recreational opportunities offered by the SPS also provide a substantial economic benefit to Californians that visit the parks. Over the FY06-FY08 period, the study estimated the annual economic benefits to California visitors to the SPS to be between $433 million and $2.8 billion. The

average estimate of the benefit Californians receive from the SPS, based on three different sources of values per activity day, is almost $1.4 billion per year.

Regardless of which total economic benefit estimate is used, it is clear that the annual economic benefits received by California residents that visit SPS facilities, like the contribution of their visits to the state and regional economies, far exceed the annual public expenditures required to operate the SPS.

# APPENDIX A.
# Development of California State Park System Expenditure Profiles

The California State Parks Department of Parks and Recreation (CSP) partnered with the California State University of Sacramento (CSU-Sacramento) to conduct intercept surveys at 26 State Parks System (SPS) park units beginning in December 2007 and ending in February 2009.[1] During this effort, CSP and CSU-Sacramento surveyed 9,637 respondents. The survey, referred to as the State Park Visitor Survey (SPVS), collected a variety of information from respondents including the specific activities they participated in during their visit and their trip expenditures.

The results of the SPVS are a key input for estimating the economic contribution from outdoor recreation in the SPS. BBC used respondent expenditure data to develop generalized expenditure profiles for typical park visitors. This appendix documents BBC's analysis of the SPVS expenditure data and describes the approach developed to estimate generalized expenditure profiles.

The appendix begins with a description of the SPVS survey and discussion of key components of the survey.

## California State Park System and SPVS Sample

The 2008/2009 California State Park System Statistical Report (FY08 Statistical Report) lists 279 park units. CSP has developed a classification system to group parks of similar nature together. Figure A-1 shows the distribution of park units by type.

**Figure A-1.**
**Number of California State Parks by Type**

| Park Classification/Type | Count |
|---|---|
| State Park (SP) | 87 |
| State Beach (SB) | 63 |
| State Historical Park (SHP) | 51 |
| State Recreation Area (SRA) | 32 |
| State Natural Reserve (SNR) | 17 |
| State Vehicular Recreation Area (SVRA) | 8 |
| State Historical Monument (SHM) | 1 |
| State Seashore (SS) | 1 |
| Wayside Campground (WC) | 1 |
| Park Property (unclassified) | 18 |
| **Total** | **279** |

[1] CSP combined survey results from Ed Z'berg Sugar Pine Point State Park with D.L Bliss State Park. Both parks are located in the Lake Tahoe Sector in the Sierra District.

As mentioned above, CSP and CSU-Sacramento conducted a total of 9,637 intercept surveys at 26 of these park units. Many survey respondents were accompanied by one or more individuals, and the SPVS asked several questions directed at the group rather than the respondent, including total group expenditures and the primary activity of the group during the visit. Groups of 1 to 5 individuals represented about 82 percent of the surveys. Approximately 14 percent of respondents were visiting the park alone. Groups with 2, 3, 4 and 5 individuals represented about 34.4 percent, 12.6 percent, 14 percent and 7 percent, respectively. Taking into account group size, the SPVS actually represents a total of 43,433 visitors.

Figure A-2 lists the parks included in the survey effort and provides basic information on park type and location and the number of survey respondents and visitors represented.

**Figure A-2.**
**SPVS – Summary of Parks Surveyed**

Note:

Regions defined by CSP and are made up of counties. See Appendix C for region descriptions. Acronyms are:

CC: Central Coast

CV: Central Valley

N. CA: Northern California

S. CA: Southern California

SF: San Francisco Bay area

LA: Los Angeles area.

Respondents were asked for the total number of visitors in their group. "Total visitors represented" represents the sum of visitors across all respondents.

| | Region | Frequencies: Surveys Conducted | Frequencies: Total Visitors Represented |
|---|---|---|---|
| **State Beach (SB)** | | | |
| Carlsbad SB | S. CA | 482 | 1,507 |
| Carpinteria SB | CC | 493 | 2,202 |
| Huntington SB | S. CA | 512 | 1,390 |
| Seacliff SB | CC | 486 | 1,911 |
| **State Historical Park (SHP)** | | | |
| Marshall Gold Discovery SHP | Sierra | 366 | 2,215 |
| San Juan Bautista SHP | CC | 297 | 1,068 |
| Sutter's Fort SHP | CV | 374 | 3,585 |
| WIll Rogers SHP | LA | 387 | 1,387 |
| **State Park (SP)** | | | |
| Anza-Borrego Desert SP | S. CA | 329 | 1,301 |
| Calaveras Big Trees SP | Sierra | 455 | 2,228 |
| Caswell Memorial SP | CV | 279 | 1,817 |
| Chino Hills SP | S. CA | 285 | 636 |
| D.L. Bliss SP | Sierra | 488 | 2,082 |
| MacKerricher SP | N. CA | 404 | 1,481 |
| Mount Tamalpais SP | SF | 423 | 1,525 |
| Pfeiffer Big Sur SP | CC | 324 | 1,358 |
| Prairie Creek Redwoods SP | N. CA | 363 | 1,030 |
| **State Recreation Area (SRA)** | | | |
| Auburn SRA | Sierra | 434 | 1,291 |
| Candlestick Point SRA | SF | 263 | 1,265 |
| Lake Perris SRA | S. CA | 414 | 2,106 |
| Millerton Lake SRA | CV | 335 | 1,816 |
| Salton Sea SRA | S. CA | 216 | 637 |
| Silverwood Lake SRA | S. CA | 458 | 2,659 |
| **State Vehicular Recreation Area (SVRA)** | | | |
| Hollister Hills SVRA | CC | 401 | 1,749 |
| Oceano Dunes SVRA | CC | 369 | 3,187 |
| **Total** | | **9,637** | **43,433** |

## Key Information from the SPVS

BBC used several components of the SPVS to estimate visitor expenditure profiles for individual park units. This section reviews the data used from the SPVS, presents summary findings from the survey and describes potential issues identified during our analysis.

**Visitor type and activities.** Trip expenditures are dependent in part on the specific purpose of the visit. Researchers commonly distinguish park visitors by those on a day trip versus those who are camping. The SPVS asked respondents, "Are you camping here or on a day trip to the park?"

Figure A-3 shows the results of this question.

**Figure A-3.**
**Day Trip verse Camping**

| | No Camping Facilities | Day Trip | | Camping | |
|---|---|---|---|---|---|
| | | Respondents | Total Visitors | Respondents | Total Visitors |
| **State Beach (SB)** | | | | | |
| Carlsbad SB | X | 482 | 1507 | — | — |
| Carpinteria SB | | 86 | 294 | 407 | 1908 |
| Huntington SB | X | 512 | 1390 | — | — |
| Seacliff SB | | 369 | 1512 | 117 | 399 |
| **State Historical Park (SHP)** | | | | | |
| Marshall Gold Discovery SHP | X | 366 | 2215 | — | — |
| San Juan Bautista SHP | X | 297 | 1068 | — | — |
| Sutter's Fort SHP | X | 374 | 3585 | — | — |
| WIll Rogers SHP | X | 387 | 1387 | — | — |
| **State Park (SP)** | | | | | |
| Anza-Borrego Desert SP | | 130 | 465 | 199 | 836 |
| Calaveras Big Trees SP | | 353 | 1692 | 102 | 536 |
| Caswell Memorial SP | | 141 | 869 | 138 | 948 |
| Chino Hills SP | | 278 | 619 | 7 | 17 |
| D.L. Bliss SP | | 343 | 1212 | 145 | 870 |
| MacKerricher SP | | 273 | 799 | 131 | 682 |
| Mount Tamalpais SP | | 359 | 1207 | 64 | 318 |
| Pfeiffer Big Sur SP | | 109 | 308 | 215 | 1050 |
| Prairie Creek Redwoods SP | | 314 | 914 | 49 | 116 |
| **State Recreation Area (SRA)** | | | | | |
| Auburn SRA | | 428 | 1261 | 6 | 30 |
| Candlestick Point SRA | X | 263 | 1265 | — | — |
| Lake Perris SRA | | 250 | 1082 | 164 | 1024 |
| Millerton Lake SRA | | 212 | 839 | 123 | 977 |
| Salton Sea SRA | | 124 | 363 | 92 | 274 |
| Silverwood Lake SRA | | 307 | 1550 | 151 | 1109 |
| **State Vehicular Recreation Area (SVRA)** | | | | | |
| Hollister Hills SVRA | | 237 | 846 | 164 | 903 |
| Oceano Dunes SVRA | | 112 | 479 | 257 | 2708 |
| **Total** | | **7,106** | **28,728** | **2,531** | **14,705** |

Note: Some respondents visiting Carlsbad SB (79 respondents/243 visitors), Huntington SB (4 respondents/8 visitors), San Juan Bautista SHP (1 respondents/2 visitors) and Marshall Gold Discovery SHP (6 respondents/70 visitors) indicated they were camping at the park. These units do not have camping facilities; therefore, BBC reclassified these respondents as day trip visitors.

As shown in the figure, seven of the surveyed park units do not have camping facilities. However, several respondents at 4 of these units indicated that they were camping. These respondents are most likely camping at a site (either public or private) in the vicinity of the park unit they were surveyed at. For the purpose of this analysis, BBC recoded these respondents as day trip visitors.

The SPVS also asked respondents, "What activities did you do or do you expect to do at this State Park?" For this question, a list of possible activities was shown to the respondent (Figure A-4).

**Figure A-4.**
**Survey Activity List**

| Activity | Activity |
|---|---|
| **Water Activities** | **Recreation Activities (cont.)** |
| 1-Beach play | 34-Kite flying |
| 2-Boating (power) | 35-Motorcycle riding |
| 3-body surfing/wakeboarding | 36-Picnicking |
| 4-Canoeing/kayaking | 37-Rollerblading |
| 5-Jet skiing (personal water craft) | 38-Scooters |
| 6-Sailboating | 39-Skiing |
| 7-SCUBA/snorkeling | 40-Sledding |
| 8-Sunbathing | 41-Snow play |
| 9-Surfing | 42-Throwing a Frisbee/Frisbee Golf |
| 10-Swimming | 43-Volleyball/badminton |
| 11-Tubing | 44-Walking for pleasure |
| 12-Water play/wading | 45-Other |
| 13-Water-skiing | **Educational/Interpretive Activities** |
| 14-Windsurfing | 46-Campfire program |
| 15-Other | 47-Historical sightseeing/tour |
| **Nature Oriented Activities** | 48-Junior Ranger |
| 16-Bird watching | 49-Junior Lifeguard |
| 17-Nature walks/interpretive trails | 50-Living history program |
| 18-Photography | 51-School program or activity |
| 19-Relaxing in the outdoors | 52-Self-guided trail/tour |
| 20-Tide pool exploration | 53-Visitor center/museum |
| 21-Wildlife viewing | 54-Native American history program |
| 22-Stargazing | 55-Other |
| 23-Wildflowers | **Off-Highway Activities** |
| 24-Other | 56-Four Wheel Drive ATV |
| **Recreation Activities** | 57-SUV |
| 25-Backpacking | 58-Dirt bike riding |
| 26-Biking - mountain bike | 59-Dune buggy |
| 27-Biking - on paved surfaces | 60-Go-kart |
| 28-Camping | 61-Other |
| 29-Fishing | **Electronics** |
| 30-Hiking | 62-Geocaching |
| 31-Horseback riding | 63-Wi-Fi |
| 32-Horseshoes | 64-GPS |
| 33-Jogging/running | 65-Other |

In a follow-up question, respondents were asked, "Which of these is the primary activity of your group as a whole?"

Slightly over 50 percent of respondents identified one of five activities as their group's primary activity: hiking (13.3%), relaxing in the outdoors (12.8%), camping (12.0%), walking for pleasure (8.9%) and fishing (5.3%).

Frequencies of primary activities by total visitors are slightly different. About 60 percent of visitors primarily participated in one of eight activities: camping (13.8%), relaxing in the outdoors (12.4%), hiking (10.1%), picnicking (6.0%), walking for pleasure (5.0%), self guided trail/tour (4.6), ATV (4.6%) and dirt bike riding (4.1%).

**Expenditures.** As mentioned previously, the SPVS gathered information on ***group*** expenditures. These reported expenditures represent total trip expenditures, not daily expenditures. Respondents were asked to estimate expenditures both in the vicinity of the park and beyond 25 miles from the park but while on the trip.[2] Distinguishing between expenditures within and beyond 25 miles of the park assisted BBC's estimation of expenditures by region (discussed later).

For each respondent, BBC estimated per visitor expenditures by dividing total group expenditures by the number of individuals in the respondent's group. Figure A-5 shows the weighted mean expenditures per visitor by park and park type for the following cases:

- All visitor expenditures
- Day trip visitor expenditures inside the park or within 25 miles
- Day trip visitor expenditures beyond 25 miles from the park while on the trip
- Camping visitor expenditures inside the park or within 25 miles
- Camping visitor expenditures beyond 25 miles from the park while on the trip

To develop mean expenditure estimates, and in subsequent statistical modeling to generalize expenditure profiles for the parks not included in the survey, BBC weighted each survey response by the number of individuals in each group. For example, for group of 5, the estimated per visitor expenditures for the group was included 5 times in the calculation of the overall mean expenditures per visitor. BBC used these weights throughout the analysis of the visitor expenditures data and when developing expenditure profiles.

[2] CSP reduced reported, category-specific expenditures for 8 respondents by a magnitude of ten. The specific expenditures were substantially larger than other respondents. BBC used these adjusted values in our analysis.

**Figure A-5.**
**Weighted Mean Expenditures per Visitor (per trip)**

| | All Visitors | Day Trip Visitor | | Camping Visitor | |
|---|---|---|---|---|---|
| | | Within 25 mi | Beyond 25 mi | Within 25 mi | Beyond 25 mi |
| **State Beach (SB)** | | | | | |
| Carlsbad SB | $52.72 | $33.79 | $18.93 | — | — |
| Carpinteria SB | $59.42 | $9.88 | $6.14 | $39.01 | $27.09 |
| Huntington SB | $21.74 | $14.39 | $7.35 | — | — |
| Seacliff SB | $46.34 | $16.24 | $7.30 | $66.99 | $65.61 |
| **State Historical Park (SHP)** | | | | | |
| Marshall Gold Discovery SHP | $28.63 | $8.38 | $20.25 | — | — |
| San Juan Bautista SHP | $31.51 | $13.11 | $18.40 | — | — |
| Sutter's Fort SHP | $17.94 | $8.37 | $9.57 | — | — |
| WIll Rogers SHP | $32.99 | $14.90 | $18.10 | — | — |
| **State Park (SP)** | | | | | |
| Anza-Borrego Desert SP | $137.69 | $48.42 | $40.18 | $39.06 | $125.94 |
| Calaveras Big Trees SP | $44.40 | $18.47 | $21.67 | $24.53 | $33.31 |
| Caswell Memorial SP | $28.14 | $6.67 | $5.05 | $18.83 | $24.36 |
| Chino Hills SP | $10.64 | $3.29 | $6.06 | $56.29 | $1.18 |
| D.L. Bliss SP | $91.78 | $56.83 | $27.35 | $26.56 | $76.26 |
| MacKerricher SP | $145.33 | $74.44 | $59.33 | $71.61 | $87.26 |
| Mount Tamalpais SP | $26.94 | $13.17 | $3.99 | $37.94 | $26.10 |
| Pfeiffer Big Sur SP | $99.78 | $49.01 | $92.86 | $24.39 | $63.05 |
| Prairie Creek Redwoods SP | $221.60 | $17.53 | $196.71 | $29.01 | $250.63 |
| **State Recreation Area (SRA)** | | | | | |
| Auburn SRA | $29.50 | $10.36 | $12.21 | $205.97 | $114.63 |
| Candlestick Point SRA | $8.62 | $7.90 | $0.71 | — | — |
| Lake Perris SRA | $30.57 | $7.46 | $4.66 | $19.92 | $30.15 |
| Millerton Lake SRA | $48.35 | $15.79 | $8.51 | $22.84 | $46.16 |
| Salton Sea SRA | $111.95 | $3.95 | $36.08 | $33.06 | $174.17 |
| Silverwood Lake SRA | $25.82 | $6.93 | $6.28 | $19.22 | $24.22 |
| **State Vehicular Recreation Area (SVRA)** | | | | | |
| Hollister Hills SVRA | $59.11 | $14.12 | $21.04 | $26.12 | $55.00 |
| Oceano Dunes SVRA | $83.90 | $37.71 | $24.79 | $52.38 | $35.30 |
| **Park Type** | | | | | |
| State Beach (SB) | $46.94 | $20.92 | $10.97 | $43.85 | $33.75 |
| State Historical Park (SHP) | $25.10 | $10.08 | $15.01 | — | — |
| State Park (SP) | $85.24 | $29.31 | $44.19 | $32.98 | $69.92 |
| State Recreation Area (SRA) | $34.90 | $8.89 | $8.07 | $23.22 | $45.11 |
| State Vehicular Recreation Area (SVRA) | $75.12 | $22.65 | $22.40 | $45.92 | $40.23 |
| **OVERALL** | **$55.15** | **$17.58** | **$21.36** | **$35.60** | **$51.19** |

As shown in the figure, average per visitor trip expenditures vary substantially across park units and park types. For example, the mean trip expenditures for a day trip visitor to a SRA was about $17 compared to about $100 for a camper visitor to a SP.

The SPVS asked respondents to estimate expenditures for different categories of goods and services — the total trip expenditures shown above reflect the sum of expenditures across these categories. The SPVS defined five categories of expenditures:

1. Overnight lodging at motels, resorts and private campgrounds (Lodging)

2. Food and beverages at restaurants and snack stands (Food)

3. Supplies such as groceries, film, bait, gifts, souvenirs, etc. (Supplies)

4. Gasoline, vehicle repairs, parking, toll fees and public transportation (Gas)

5. Recreation purchases; e.g., equipment rentals and tours (Recreation)

Figure A-6 shows the proportion of spending across the five categories for the 4 cases shown in Figure A-5 by park type.

**Figure A-6.**
**Relative Spending across Expenditure Categories**

Note:

Proportions are based on the weighted mean visitor spending in each category.

| | Lodging | Food | Supplies | Gas | Recreation |
|---|---|---|---|---|---|
| **Day Trip Visitors – Inside Park or Within 25 Miles** | | | | | |
| State Beach (SB) | 35% | 26% | 20% | 17% | 2% |
| State Historical Park (SHP) | 20% | 33% | 21% | 19% | 7% |
| State Park (SP) | 43% | 25% | 15% | 14% | 3% |
| State Recreation Area (SRA) | 9% | 13% | 36% | 31% | 12% |
| State Vehicular Recreation Area (SVRA) | 22% | 24% | 16% | 30% | 7% |
| **OVERALL** | **32%** | **25%** | **19%** | **18%** | **5%** |
| **Day Trip Visitors – Beyond 25 Miles** | | | | | |
| State Beach (SB) | 21% | 15% | 15% | 41% | 8% |
| State Historical Park (SHP) | 24% | 17% | 13% | 34% | 11% |
| State Park (SP) | 29% | 19% | 14% | 33% | 5% |
| State Recreation Area (SRA) | 17% | 12% | 28% | 37% | 6% |
| State Vehicular Recreation Area (SVRA) | 12% | 11% | 21% | 45% | 11% |
| **OVERALL** | **25%** | **17%** | **15%** | **35%** | **7%** |
| **Camper Visitors – Inside Park or Within 25 Miles** | | | | | |
| State Beach (SB) | 43% | 20% | 22% | 13% | 1% |
| State Historical Park (SHP) | – | – | – | – | – |
| State Park (SP) | 27% | 23% | 28% | 19% | 4% |
| State Recreation Area (SRA) | 15% | 6% | 40% | 23% | 15% |
| State Vehicular Recreation Area (SVRA) | 9% | 15% | 32% | 37% | 7% |
| **OVERALL** | **22%** | **17%** | **30%** | **24%** | **6%** |
| **Camper Visitors – Beyond 25 Miles** | | | | | |
| State Beach (SB) | 0% | 3% | 45% | 48% | 3% |
| State Historical Park (SHP) | – | – | – | – | – |
| State Park (SP) | 11% | 10% | 33% | 40% | 6% |
| State Recreation Area (SRA) | 5% | 5% | 43% | 41% | 6% |
| State Vehicular Recreation Area (SVRA) | 2% | 4% | 36% | 47% | 11% |
| **OVERALL** | **7%** | **7%** | **37%** | **42%** | **7%** |

Similar to total expenditures, the proportion of money spent in each category varies by park type.

## Development of Visitor Expenditure Profiles

Figure A-5 demonstrates that visitor expenditures vary across parks and park types. At least a portion of the observed differences in expenditure levels can be explained through differences in park characteristics, including:

- Park facilities such as beaches, visitor centers, RV access, campsites and food service facilities;
- Park activity opportunities such as those listed in Figure 4; and
- Population size in the vicinity of the park (i.e., remoteness).

BBC tested the effects of these various factors on visitor expenditures using multivariate weighted ordinary least squares regression analysis. The frequency weights account for number of visitors rather than the number of respondents (as discussed earlier). Data for these models came from a variety of sources:

- Visitor expenditure and activity information from the SPVS;
- Park-level facility characteristic data from the FY08 Statistical Report;
- Park-level facility and activity opportunity information provided by CSP (Park Characteristics); and
- 2009 Census tract population data developed by Claritas.

Activity and facility variables were specified as indicator variables — equal to 1 if applicable to the visitor or park and equal to 0 otherwise. BBC also developed indicator variables for each park type.

The remoteness of a park can impact visitor expenditures. Parks near population centers generally have more visits, but lower mean visitor expenditures than more remote parks. This results from easier access and shorter travel time to parks in and near large urban areas. The SPVS data set includes two variables related to remoteness — region and whether the park is rural or urban (rural/urban).[3] BBC also estimated the population within 20, 40 and 60 miles of each of the parks in the SPVS using GIS software and 2009 Census tract populations. Figure A-7 shows the population within 20 miles of each park, between 20 and 40 miles of each park and between 40 and 60 miles of each park.

[3] Park regions are shown in Figure 2. CSP identified 5 of the 26 parks in the SPVS as urban parks including Candlestick Point SRA, Carlsbad SB, Lake Perris SRA, Sutter's Fort SHP and Will Rogers SHP.

**Figure A-7.**
**Populations in the Vicinity of SPVS Parks**

Note:

The population numbers in the first three columns are not cumulative and can be added together (as shown in the fourth column) without double counting.

| | Within 20 miles | Between 20 and 40 miles | Between 40 and 60 miles | Total within 60 miles |
|---|---|---|---|---|
| Chino Hills SP | 7,007,981 | 7,600,660 | 2,955,803 | 17,564,444 |
| Will Rogers SHP | 5,858,946 | 5,555,626 | 3,517,522 | 14,932,094 |
| Huntington SB | 3,974,173 | 8,037,164 | 4,466,379 | 16,477,716 |
| Candlestick Point SRA | 2,870,815 | 2,909,808 | 1,596,451 | 7,377,074 |
| Mount Tamalpais SP | 2,017,719 | 2,718,832 | 2,259,318 | 6,995,869 |
| Lake Perris SRA | 1,982,783 | 3,666,808 | 6,767,489 | 12,417,080 |
| Sutter's Fort SHP | 1,705,931 | 929,148 | 1,801,946 | 4,437,025 |
| Silverwood Lake SRA | 1,480,820 | 3,043,609 | 9,532,630 | 14,057,059 |
| Carlsbad SB | 1,128,146 | 2,702,917 | 3,665,663 | 7,496,726 |
| Auburn SRA | 841,790 | 1,391,820 | 877,079 | 3,110,689 |
| Caswell Memorial SP | 806,787 | 978,810 | 4,817,544 | 6,603,141 |
| Millerton Lake SRA | 750,623 | 324,241 | 589,845 | 1,664,709 |
| Seacliff SB | 639,947 | 2,178,419 | 2,138,750 | 4,957,116 |
| San Juan Bautista SHP | 457,336 | 1,272,786 | 1,653,694 | 3,383,816 |
| Anza-Borrego Desert SP | 449,274 | 3,398,663 | 2,283,892 | 6,131,829 |
| Hollister Hills SVRA | 426,682 | 713,001 | 1,921,721 | 3,061,404 |
| Marshall Gold Discovery SHP | 407,287 | 1,592,792 | 857,051 | 2,857,130 |
| Carpinteria SB | 288,508 | 556,015 | 1,165,517 | 2,010,040 |
| Oceano Dunes SVRA | 274,073 | 172,467 | 99,485 | 546,025 |
| D.L. Bliss SP | 93,851 | 356,233 | 587,346 | 1,037,430 |
| Salton Sea SRA | 81,560 | 371,912 | 337,775 | 791,247 |
| Calaveras Big Trees SP | 61,308 | 137,872 | 1,761,356 | 1,960,536 |
| MacKerricher SP | 22,902 | 56,541 | 47,975 | 127,418 |
| Pfeiffer Big Sur SP | 22,407 | 378,320 | 412,318 | 813,045 |
| Prairie Creek Redwoods SP | 8,017 | 98,034 | 44,126 | 150,177 |

BBC tested a variety of model specifications using different definitions of both the dependent and independent variables. Because of the large set of available variables, there were a very large number of possible specifications and a large number of models were tested.

During the early stages of model development, BBC identified several aspects of the model that would be consistent across all specifications. First, the model will consist of separate regression equations for day trip visitors and campers. This approach is possible because the data in both the SPVS (visitor expenditures) and the CSP's annual Statistical Reports (annual park visitation) can be linked to each visitor type. As shown in Figure A-5 these two visitor types have substantially different expenditure levels — the typical camper spends over twice as much as a day trip visitor. Therefore, the ability to separately model these visitor types leads to more accurate estimates of total park expenditures.

Second, BBC observed in early models that both the region and urban/rural variables did not help explain differences in visitor expenditures. This observation led BBC to develop the population variables (described above) to better capture the relative remoteness of park units. In all subsequent models, these variables were used to test for the possible effects of remoteness on visitor expenditures.

Lastly, expenditures inside the park or within 25 miles were modeled separately from expenditures beyond 25 miles. As mentioned previously, this modeling approach assists in estimating regional economic contributions. Specifically, some trip expenditures may occur outside the region in which the park is located. An accurate estimate of regional economic contributions should account for the geographic distribution of these expenditures.

With the above modeling issues in mind, BBC evaluated the following model specification options:

- Specifications alternatives for the dependent variable:
  - Total per visitor expenditures
  - Separate regression equations for each expenditure category (e.g., per visitor lodging expenditures)
- Specification alternatives for activity variables:
  - Include indicator variables to represent all activities a visitor participated in during their visit (SPVS)
  - Include indicator variables to represent the primary activity a visitor participated in during their visit (SPVS)
  - Include indicator variables to represent the activity opportunities available within the park (Park Characteristics)
- Include indicator variables to represent park facilities (Park Characteristics and FY08 Statistical Report)
- Include indicator variables for park type — this variable may roughly capture the differences in facilities and activity opportunities across different park types

Each of these specification alternatives can be combined in different ways with one another. Furthermore, within each alternative are various options. For example, one possibility is to include similar activities such as power boating and jet skiing in the model separately or to combine these activities into one umbrella activity (motorized boating).

In most cases, BBC found the statistical results to be generally ambiguous with many of the coefficients on the independent variables having unexpected signs or being statistically insignificant. For this reason, BBC selected a relatively simple specification that limited subjectivity in the model specification, while still capturing the variation in expenditure profiles across park units. The selected specification defines the dependent variable as total per visitor expenditures. The independent variables include indicator variables for park type and the population variables.

Figures A-8 through A-11 show the results for each of the regression equations — the four equations are consistent with the cases shown in Figure A-5.

**Figure A-8. Expenditure Profile for Day Trip Visitors – Inside Park or Within 25 Miles**

| | Coefficient | t-statistic | |
|---|---|---|---|
| State Beach (SB) | 1.87 | 0.84 | |
| State Historical Park (SHP) | -9.22 | -4.69 | ** |
| State Park (SP) | 8.07 | 4.17 | ** |
| State Recreation Area (SRA) | -8.45 | -4.15 | ** |
| Population within 20 miles | -2.33E-06 | -4.25 | ** |
| Population between 20 & 40 miles | 6.68E-07 | 1.35 | |
| Population between 40 & 60 miles | -1.34E-06 | -6.14 | ** |
| Constant | 24.86 | 13.78 | ** |

Note:

**Significant at 99% confidence level.

Dependent variable: Day trip visitor expenditures inside the park or within 25 miles.

Indicator variable for State Vehicular Recreation Area (SVRA) was the excluded park type.

**Figure A-9. Expenditure Profile for Day Trip Visitors – Beyond 25 Miles**

| | Coefficient | t-statistic | |
|---|---|---|---|
| State Beach (SB) | -4.73 | -1.21 | |
| State Historical Park (SHP) | -0.13 | -0.04 | |
| State Park (SP) | 24.68 | 7.33 | ** |
| State Recreation Area (SRA) | -2.16 | -0.61 | ** |
| Population within 20 miles | -5.67E-06 | -5.95 | ** |
| Population between 20 & 40 miles | 2.32E-06 | 2.71 | ** |
| Population between 40 & 60 miles | -3.45E-06 | -9.08 | ** |
| Constant | 27.66 | 8.82 | ** |

Note:

**Significant at 99% confidence level.

Dependent variable: Day trip visitor expenditures beyond 25 miles.

Indicator variable for State Vehicular Recreation Area (SVRA) was the excluded park type.

**Figure A-10. Expenditure Profile for Campers – Inside Park or Within 25 Miles**

| | Coefficient | t-statistic | |
|---|---|---|---|
| State Beach (SB) | -2.00 | -1.30 | |
| State Park (SP) | -12.55 | -9.70 | ** |
| State Recreation Area (SRA) | -13.55 | -7.71 | ** |
| Population within 20 miles | -2.18E-06 | -1.46 | ** |
| Population between 20 & 40 miles | 5.31E-06 | 7.37 | ** |
| Population between 40 & 60 miles | -3.60E-06 | -11.92 | ** |
| Constant | 46.97 | 46.88 | ** |

Note:

**Significant at 99% confidence level.

Dependent variable: Camper expenditures inside the park or within 25 miles.

None of the State Historical Parks surveyed in the SPVS include camping facilities.

Indicator variable for State Vehicular Recreation Area (SVRA) was the excluded park type.

**Figure A-11. Expenditure Profile for Campers – Beyond 25 Miles**

| | Coefficient | t-statistic |
|---|---|---|
| State Beach (SB) | -13.31 | -3.08 ** |
| State Park (SP) | 21.90 | 6.06 ** |
| State Recreation Area (SRA) | 44.82 | 9.14 ** |
| Population within 20 miles | -5.52E-05 | -13.22 ** |
| Population between 20 & 40 miles | 2.98E-05 | 14.82 ** |
| Population between 40 & 60 miles | -8.87E-06 | -10.52 ** |
| Constant | 53.20 | 19.02 ** |

Note:

**Significant at 99% confidence level.

Dependent variable: Camper expenditures beyond 25 miles.

None of the State Historical Parks surveyed in the SPVS include camping facilities.

Indicator variable for State Vehicular Recreation Area (SVRA) was the excluded park type.

In general, the variables included in the models are statistically significant predictors of expenditures per visitor. This suggests that both park type and the population in the vicinity of the park influence the level of expenditures per visit.

BBC used these models to simulate mean visitor expenditures for each of the surveyed SPVS parks and compared these estimates to the actual mean expenditures. Figure A-12 shows these results.

**Figure A-12.**
**Simulated verse Actual Mean Visitor Expenditures**

| | Day Trip (<25 miles) | | Day Trip (>25 miles) | | Campers (<25 miles) | | Campers (>25 miles) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Estimate | Actual | Estimate | Actual | Estimate | Actual | Estimate | Actual | Estimate | Actual |
| **State Beach (SB)** | | | | | | | | | | |
| Carlsbad SB | $21.00 | $33.79 | $10.15 | $18.93 | — | — | — | — | $31.16 | $52.72 |
| Carpinteria SB | $24.87 | $9.88 | $18.56 | $6.14 | $43.09 | $39.01 | $30.20 | $27.09 | $69.30 | $59.42 |
| Huntington SB | $16.86 | $14.39 | $3.63 | $7.35 | — | — | — | — | $20.49 | $21.74 |
| Seacliff SB | $23.83 | $16.24 | $16.97 | $7.30 | $47.44 | $66.99 | $50.51 | $65.61 | $52.74 | $46.34 |
| **OVERALL** | **$20.93** | **$20.92** | **$10.94** | **$10.97** | **$43.84** | **$43.85** | **$33.71** | **$33.75** | **$46.91** | **$46.94** |
| **State Historical Park (SHP)** | | | | | | | | | | |
| Marshall Gold Discovery SHP | $14.61 | $8.38 | $25.96 | $20.25 | — | — | — | — | $40.57 | $28.63 |
| San Juan Bautista SHP | $13.21 | $13.11 | $22.18 | $18.40 | — | — | — | — | $35.40 | $31.51 |
| Sutter's Fort SHP | $9.88 | $8.37 | $13.80 | $9.57 | — | — | — | — | $23.67 | $17.94 |
| WIll Rogers SHP | $0.99 | $14.90 | -$4.94 | $18.10 | — | — | — | — | -$3.94 | $32.99 |
| **OVERALL** | **$10.09** | **$10.08** | **$15.00** | **$15.01** | **—** | **—** | **—** | **—** | **$25.08** | **$25.10** |
| **State Park (SP)** | | | | | | | | | | |
| Anza-Borrego Desert SP | $31.10 | $48.42 | $49.79 | $40.18 | $43.27 | $39.06 | $131.33 | $125.94 | $141.10 | $137.69 |
| Calaveras Big Trees SP | $30.52 | $18.47 | $46.23 | $21.67 | $28.68 | $24.53 | $60.21 | $33.31 | $79.67 | $44.40 |
| Caswell Memorial SP | $25.25 | $6.67 | $33.41 | $5.05 | $20.52 | $18.83 | $17.01 | $24.36 | $47.63 | $28.14 |
| Chino Hills SP | $17.72 | $3.29 | $20.03 | $6.06 | $48.86 | $56.29 | -$111.45 | $1.18 | $35.07 | $10.64 |
| D.L. Bliss SP | $32.17 | $56.83 | $50.60 | $27.35 | $33.99 | $26.12 | $75.33 | $76.26 | $93.86 | $91.78 |
| MacKerricher SP | $32.85 | $74.44 | $52.17 | $59.33 | $34.50 | $71.61 | $75.10 | $87.26 | $96.34 | $145.33 |
| Mount Tamalpais SP | $27.02 | $13.17 | $39.41 | $3.99 | $36.33 | $37.94 | $24.71 | $26.10 | $65.30 | $26.94 |
| Pfeiffer Big Sur SP | $32.58 | $49.01 | $51.66 | $92.86 | $34.90 | $24.39 | $81.48 | $63.05 | $109.09 | $99.78 |
| Prairie Creek Redwoods SP | $32.92 | $17.53 | $52.36 | $196.71 | $34.77 | $29.01 | $77.19 | $250.63 | $88.29 | $221.60 |
| **OVERALL** | **$29.31** | **$29.31** | **$44.18** | **$44.19** | **$32.97** | **$32.98** | **$69.87** | **$69.92** | **$85.21** | **$85.24** |
| **State Recreation Area (SRA)** | | | | | | | | | | |
| Auburn SRA | $14.20 | $10.36 | $20.93 | $12.21 | $35.81 | $205.97 | $85.25 | $114.63 | $37.12 | $29.50 |
| Candlestick Point SRA | $9.52 | $7.90 | $10.46 | $0.71 | — | — | — | — | $19.98 | $8.62 |
| Lake Perris SRA | $5.17 | $7.46 | -$0.59 | $4.66 | $24.20 | $19.92 | $37.81 | $30.15 | $32.51 | $30.57 |
| Millerton Lake SRA | $14.08 | $15.79 | $19.96 | $8.51 | $31.38 | $22.84 | $61.01 | $46.16 | $65.43 | $48.35 |
| Salton Sea SRA | $16.01 | $3.95 | $24.73 | $36.08 | $34.00 | $33.06 | $101.60 | $174.17 | $81.54 | $111.95 |
| Silverwood Lake SRA | $2.22 | $6.93 | -$8.73 | $6.28 | $12.03 | $19.22 | $22.42 | $24.22 | $10.57 | $25.82 |
| **OVERALL** | **$8.90** | **$8.89** | **$8.05** | **$8.07** | **$23.19** | **$23.22** | **$44.99** | **$45.11** | **$34.84** | **$34.90** |
| **State Vehicular Recreation Area (SVRA)** | | | | | | | | | | |
| Hollister Hills SVRA | $21.77 | $14.12 | $20.26 | $21.04 | $42.90 | $26.56 | $33.85 | $55.00 | $59.96 | $59.11 |
| Oceano Dunes SVRA | $24.21 | $37.71 | $26.16 | $24.79 | $46.93 | $52.38 | $42.33 | $35.30 | $83.41 | $83.90 |
| **OVERALL** | **$22.65** | **$22.65** | **$22.39** | **$22.40** | **$45.92** | **$45.92** | **$40.21** | **$40.23** | **$75.10** | **$75.12** |

The model generally performed well in predicting average per visitor trip expenditures. For surveyed parks where expenditures per visit were relatively large, the model generally also predicts high expenditures levels, and vice versa. When averaged for each park type as a group, the model almost perfectly estimated average expenditures.

There are, however, a number of issues involved in applying the model to estimate visitor expenditures at the park units not included in the survey. These are discussed in Appendix B.

# APPENDIX B.
# Estimating California State Park System Total Visitor Expenditures and Operating Costs

The purpose of this appendix is to document the approach developed by BBC to estimate, by park type and region, the total annual visitor expenditures related to visitation to the SPS and the total operating costs of the SPS. These two variables represent the direct economic contribution of the SPS to California's state and regional economies. BBC used the IMPLAN model to estimate the indirect economic contribution that can be attributed to the SPS based on the direct contribution described in this appendix.

## Estimation of SPS Visitor Expenditures

This section details the approach used to estimate visitor expenditures by park type and region. BBC developed the expenditure estimates using data from the following sources:

- **California State Park System Statistical Report (Statistical Report).** The Statistical Report is an annual CSP publication that provides detailed information about the SPS during the prior fiscal year[1] — including park unit characteristics, visitation, operating costs and revenues. BBC used data from the FY06, FY07 and FY08 Statistical Reports.

- **State Park Visitor Survey (SPVS).** CSP and CSU-Sacramento conducted intercept surveys at 26 SPS units beginning in December 2007 and ending in the February 2009.[2] During this effort, CSP and CSU-Sacramento surveyed 9,637 respondents. The SPVS collected a variety of information from respondents including the specific activities participated in during their visit and trip expenditures.

- **GIS and population data.** BBC used GIS software to estimate the population in the vicinity of individual park units. This analysis utilized boundary maps of the SPS and California, Oregon, Nevada and Arizona Census tracts[3] from the 2000 Census. BBC used 2008 Census tract population estimates for California, Nevada and Arizona (based on estimates developed by the private data provider Claritas) and 2000 population estimates for Oregon (based on data from the US Census).

- **California State Park System Expenditure Profile model (CSPS-Expend model).** BBC used the SPVS and population data to develop econometric models to predict the

[1] The fiscal year begins on July 1st and ends on June 30th. For the purpose of this report, the notion FYXX will be used to refer to the fiscal year. For example, FY06 represents the 2006/2007 fiscal year covering July 1, 2006 through June 30, 2007.

[2] CSP combined survey results from Ed Z'berg Sugar Pine Point State Park with D.L Bliss State Park. Both parks are located in the Lake Tahoe Sector in the Sierra District.

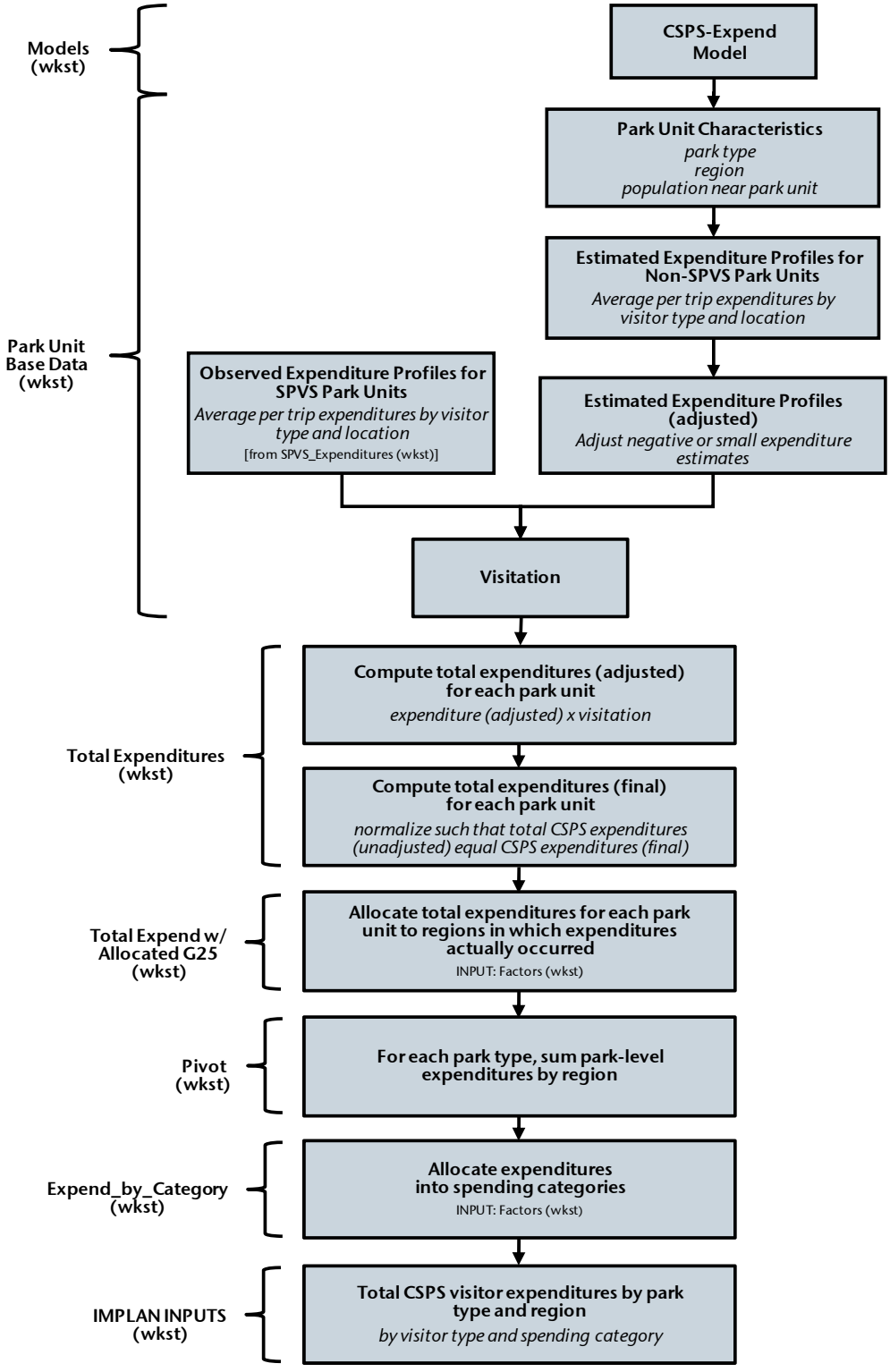
[3] Census tracts are geographic areas defined by the US Census Bureau. These areas are typically defined such that population is between approximately 2,500 and 8,000 persons.

expenditures per visitor for each park unit not surveyed in the SPVS. Appendix A provides a detailed description of these models.

The general approach began by estimating average per visitor trip expenditures for individual parks using the CSPS-Expend model. BBC combined these estimates with visitation data from the Statistical Reports to compute the total visitor expenditures for each park unit. Using observed spending patterns from the SPVS, these expenditures were broken down into spending categories (e.g., gasoline, lodging). Lastly, BBC aggregated these expenditures by park type and by the region where the expenditures occurred.

BBC completed this analysis in an Excel workbook titled "CSPS Model." Figure B-1 shows a flowchart of the analysis and outlines the organization of the Excel workbook.

**Figure B-1.**
**Flowchart for Estimating Total Visitor Expenditures**




Source: BBC Research & Consulting, 2010.

The remainder of this section discusses each component of the analysis in detail and identifies and describes the applicable Excel worksheets.

**Component 1: CSPS-Expend Model.** The CSPS-Expend model (contained in the "Models" worksheet) consists of four econometric equations for estimating trip expenditures. Each equation represents a different expenditure ***bin*** including trip expenditures for:

- Day trip visitors inside the park or within 25 miles (DayL25);
- Day trip visitors beyond 25 miles from the park while on the trip (DayG25);
- Camping visitors inside the park or within 25 miles (CampL25); and
- Camping visitors beyond 25 miles from the park while on the trip (CampG25).

The independent variables for the equations consist of indicator variables for park type and the population in the vicinity of the park unit (these variables are discussed later).

As noted above, for a detailed description of the development of the econometric equations, see Appendix A.

**Component 2: Park Unit Base Data.** The "Park Unit - Base Data" worksheet contains park unit level data including key characteristics (park type, region and population in the vicinity of the park), visitation data and visitor expenditure profiles.

As of the FY08 Statistical Report, the SPS consisted of 279 park units; however, visitation data was only available for 224 of the parks.[4] BBC only included park units with reported visitation data in this analysis.

**Park type.** The management approach for each park unit is guided by the unit's classification (referred to as the "park type" in this memo).[5] Each park type represents a group of units that are similar in the available activities and facilities. The parks included in the SPVS fell into five park types, including:

- State Beaches (SB);
- State Historical Parks (SHP);
- State Parks (SP);
- State Recreation Areas (SRA); and
- State Vehicular Recreation Areas (SVRA).

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

[5] Nine classifications are formally defined by the California Resources Code, Section 5019.50 et seq.

Since the CSPS-Expend model uses park type as an input for estimating expenditures, the model can only be applied to park units classified as one of these five park types. However, 29 of the 224 park units are classified as other park types. Based on discussions with CSP staff, these units were assigned to one of the five park types based the nature of the facilities and activities at that park unit. Figure B-2 shows a breakdown of the 224 park units by park type.

**Figure B-2.**
**Number of Park Units by Park Type**

Source:

BBC Research & Consulting, 2010 based on FY08 Statistical Report, 2010.

| Park Type | Number of Units | |
|---|---|---|
| | Actual | Adjusted |
| State Beach (SB) | 48 | 48 |
| State Historical Park (SHP) | 40 | 43 |
| State Park (SP) | 81 | 99 |
| State Recreation Area (SRA) | 26 | 26 |
| State Vehicular Recreation Area (SVRA) | 8 | 8 |
| Park Property (unclassified) | 4 | — |
| State Historical Monument (SHM) | 1 | — |
| State Natural Reserve (SNR) | 16 | — |
| State Seashore (SS) | 0 | — |
| Wayside Campground (WC) | 0 | — |
| **Total** | **224** | **224** |

**Region.** CSP divided California regions into seven when analyzing results from the Survey of Public Opinions and Attitudes on Outdoor Recreation (SPOA). Each region consists of multiple counties and each county falls entirely into one region. These regions include Central Coast, Central Valley, Los Angeles, Northern California, San Francisco Bay Area, Sierra and Southern California. Appendix C lists the counties included in each region.

The Statistical Report identifies the county each park unit is located within. The boundaries of nine of the park units (with visitation data) encompass land in more than one region. Figure B-3 lists these parks, the regions they are located in, and the proportion of the park's area in each region.

**Figure B-3.**
**Park Units Located in Multiple Regions**

Source:

BBC Research & Consulting, 2010 based on FY08 Statistical Report, 2010.

| Park Unit / Region | Proportion of Area | Park Unit / Region | Proportion of Area |
|---|---|---|---|
| **Folsom Lake SRA** | | **Bidwell-Sacramento River SP** | |
| Sierra | 81% | Central Valley | 93% |
| Central Valley | 19% | Northern California | 7% |
| **Henry W. Coe SP** | | **Pacheco SP** | |
| San Francisco Bay Area | 69% | Central Valley | 91% |
| Central Valley | 31% | San Francisco Bay Area | 9% |
| **Big Basin Redwoods SP** | | **Castle Rock SP** | |
| Central Coast | 95% | Central Coast | 98% |
| Central Valley | 5% | San Francisco Bay Area | 2% |
| **Carnegie SVRA** | | **Carpinteria SB** | |
| San Francisco Bay Area | 75% | Central Coast | 96% |
| Central Valley | 25% | Los Angeles | 4% |
| **Robert Louis Stevenson SP** | | | |
| San Francisco Bay Area | 95% | | |
| Northern California | 5% | | |

Figure B-4 shows the number of park units located within each region.

**Figure B-4.**
**Title**

Note:

The sum equals 233 since 9 park units are located in two regions.

Source:

BBC Research & Consulting, 2010 based on FY08 Statistical Report, 2010.

| Region | Number of Park Units |
|---|---|
| Central Coast | 35 |
| Central Valley | 42 |
| Los Angeles | 17 |
| Northern California | 50 |
| San Francisco Bay Area | 42 |
| Sierra | 18 |
| Southern California | 29 |

**Population in the vicinity of the park unit**. Using GIS software, BBC estimated the population within 20 miles of each park boundary, the population between 20 and 40 miles and the population between 40 and 60 miles. These estimates are based on Census tract populations. As noted previously, the CSPS-Expend model uses these variables as an input for estimating trip expenditures. Appendix A provides detailed information on the development of these variables.

**Visitor expenditure profiles**. BBC estimated expenditure profiles for each of the 224 park units. As discussed in Appendix A, expenditures 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). The park unit's expenditure profile reflects the average expenditures per visitor ***trip***. Thus, the expenditure profile for campers represents the expenditures for an average camper during their entire trip, potentially spanning multiple days in the park.

For the 26 SPVS park units, the expenditure profiles were based on the observed expenditures reported by respondents at each unit.[6] BBC estimated expenditure profiles for each of the non-surveyed park units using the CSPS-Expend model.[7] In a small number of cases, the CSPS-Expend model predicts negative or near zero per visit expenditures. For these cases, BBC replaced the estimated expenditure with the minimum average expenditure value per visit from the SPVS for that specific bin.

**Visitation.** The Statistical Report provides disaggregated visitation data for day trip visitors and for camping visitors.[8] The visitation counts represent single day use for an individual day trip visitor and one night stay for an individual camper. Thus, for example, the Statistical Report would count a group of 5 who are camping for 3 nights as 15 camping nights.

Figure B-5 provides a summary of the average visitation levels by visitor type and region and park type for the 224 park units. For a variety of reasons, in any given year, visitation at a particular park unit may exceed or fall below "typical" visitation levels. Therefore, BBC used the 3-year average of FY06, FY07 and FY08 visitation levels for this analysis.

**Figure B-5.**
**Average Annual State Park Visitation**

Source:

BBC Research & Consulting, 2010 based on FY08 Statistical Report, 2010.

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

**Component 3: Estimation of Total Visitor Expenditures for Each Park Unit.** The "Total Expenditures" worksheet contains the estimated total visitor expenditures for the four bins at each park unit in 2008. Total expenditures equal visitation (either day trip visits or camping visits) multiplied by per trip visitor expenditures. As discussed above, visitation data for campers represents camping nights, whereas, camper expenditure profiles reflect trip expenditures. Therefore, BBC

[6] BBC assumed the same expenditure profile for D.L. Bliss SP and Ed Z'berg Sugar Pine Point SP.

[7] Of the 224 park units with visitation data, 93 do not have camping facilities. For these units, camper related expenditures are set to zero.

[8] Day trip visitors are separated into free day use and pay day use. This distinction is not important for this analysis.

converted camping nights into estimated camping trips based on length of stay data from the SPVS. Figure B-6 shows the estimated length of stay by park type.

**Figure B-6.**
**Average Length of Stay for Camping Visitors**

Note:

None of the SVPS park units classified as SHPs had camping facilities.

Source:

BBC Research & Consulting, 2010 based on SPVS, 2010.

| Park Type | Length of Stay |
|---|---|
| State Beach (SB) | 3.7 |
| State Park (SP) | 2.7 |
| State Historical Park (SHP) | — |
| State Recreation Area (SRA) | 2.7 |
| State Vehicular Recreation Area (SVRA) | 3.1 |
| **Overall** | **3.0** |

On average, camping visitors surveyed in the SPVS stayed for 3 nights. As shown in the figure, visitors to SBs typically camped for more nights than campers at the other types of park units. BBC estimated the number of camping trips using park type average lengths of stay. For SHPs with camping, the overall average was used (because the SPVS did not include SHPs with camping).

The worksheet shows three sets of park unit trip expenditures:

1. ***Total Expenditures - thousand dollars (original)***: based on the original park unit expenditure profile estimates including negative and near zero expenditure estimates.

2. ***Total Expenditures - thousand dollars (adjusted)***: based on expenditure profiles after replacing negative and near zero values with SPVS minimum values.

3. ***Total Expenditures - thousand dollars (final)***: final expenditure profiles after normalizing adjusted expenditures.[9]

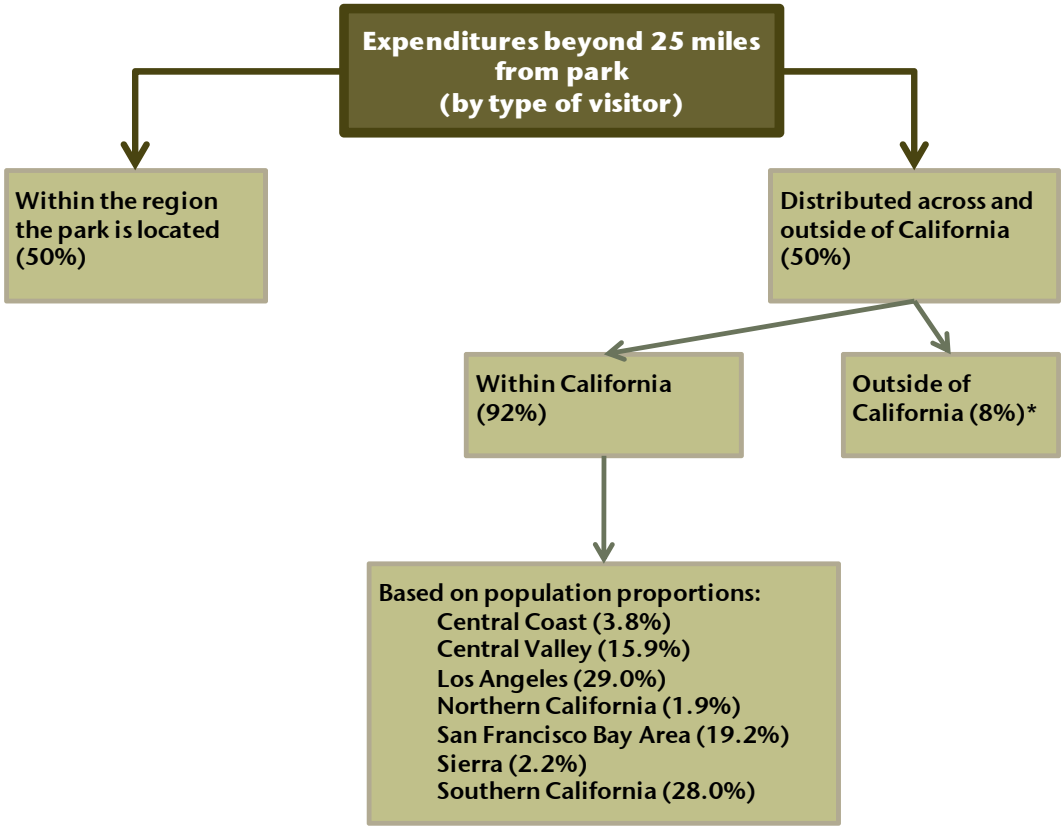
**Component 4: Allocate Expenditures Beyond 25 Miles to Regions.** Some visitor expenditures beyond 25 miles from the park likely occur in regions other than the region in which the park is located. An accurate estimate of regional economic contributions should account for the regional distribution of these expenditures. A portion of these expenditures may also occur outside the state — these expenditures should be excluded from the analysis. The "Tot Expend w Allocated G25" worksheet contains expanded park unit-level total expenditures (final) by the estimated locations where these expenditures occurred.

Figure B-7 shows the approach developed by BBC to allocate expenditures beyond 25 miles from the park unit to specific locations.

**Figure B-7.**

[9] The original estimate of system-wide total expenditures, including near zero or negative number in a few cases, represent a benchmark estimate. The adjustment applied to these expenditures artificially inflates the system-wide total expenditures. We applied bin-specific ratios of the original system-wide expenditure estimates to the adjusted system-wide expenditure estimates to each park in order to ensure that the total system-wide expenditure equaled the original/benchmark totals.

**Geographic Allocation of Expenditures beyond 25 Miles of a Park Unit**




Note: *Based on data from the SPVS.
Source: BBC Research & Consulting, 2010.

This approach assumes that 50 percent of these expenditures still occur within the same region as the park unit. BBC assumed that the remaining 50 percent of the expenditures occur closer to the visitor's origin. Based on data from the SPVS, approximately 8 percent of visitors to the SPS live outside of the state. The analysis assumes that the origin of California visitors generally corresponds to the total distribution of population across the regions.

**Component 5: Sum Expenditures across Park Type and Region.** The previous component completes the estimation of total trip expenditures by park unit. In this component, for each park type, park unit expenditures are summed by region. The worksheet titled "PIVOT" contains these aggregate expenditures.

**Component 6: Disaggregate Expenditures into Spending Categories.** This step (completed in the worksheet titled "Expend_by_Category") disaggregates expenditures into spending categories based on data from the SPVS. As discussed in Appendix A, the SVPS collected expenditure information for five spending categories. Figure A-6 shows the proportion of spending across these categories by park type for each of the four expenditure bins.

**Component 7: Total Visitor Expenditures by Park Type and Region.** The final worksheet, titled "IMPLAN INPUTS," contains total visitor expenditures by visitor type and spending category by region and by park type. Figure B-8 shows the total expenditures by park type.

**Figure B-8.**
**Total Visitor Expenditures by Park Type (thousand dollars)**

| | Lodging | Food | Supplies | Gasoline | Recreation | Total |
|---|---|---|---|---|---|---|
| **Day Trip Visitors** | | | | | | |
| State Beach (SB) | $277,877 | $201,481 | $168,101 | $224,221 | $33,114 | $904,794 |
| State Historical Park (SHP) | $66,249 | $70,555 | $48,020 | $83,063 | $28,009 | $295,897 |
| State Park (SP) | $529,435 | $326,026 | $218,903 | $381,926 | $66,699 | $1,522,988 |
| State Recreation Area (SRA) | $18,171 | $17,171 | $44,248 | $46,802 | $11,592 | $137,983 |
| State Vehicular Recreation Area (SVRA) | $22,589 | $24,272 | $22,748 | $46,298 | $11,367 | $127,274 |
| **SUBTOTAL** | **$914,322** | **$639,504** | **$502,019** | **$782,309** | **$150,783** | **$2,988,937** |
| **Camping Visitors** | | | | | | |
| State Beach (SB) | $13,881 | $7,254 | $15,661 | $13,416 | $1,066 | $51,277 |
| State Historical Park (SHP) | $126 | $109 | $320 | $325 | $60 | $940 |
| State Park (SP) | $17,140 | $15,366 | $33,994 | $35,413 | $5,726 | $107,638 |
| State Recreation Area (SRA) | $1,417 | $937 | $7,315 | $6,169 | $1,558 | $17,396 |
| State Vehicular Recreation Area (SVRA) | $2,705 | $4,960 | $17,795 | $22,090 | $4,624 | $52,176 |
| **SUBTOTAL** | **$35,269** | **$28,627** | **$75,084** | **$77,412** | **$13,035** | **$229,428** |
| **All Visitors** | | | | | | |
| State Beach (SB) | $291,758 | $208,735 | $183,762 | $237,637 | $34,180 | $956,071 |
| State Historical Park (SHP) | $66,376 | $70,664 | $48,340 | $83,388 | $28,070 | $296,837 |
| State Park (SP) | $546,575 | $341,392 | $252,896 | $417,338 | $72,425 | $1,630,627 |
| State Recreation Area (SRA) | $19,588 | $18,108 | $51,562 | $52,971 | $13,151 | $155,379 |
| State Vehicular Recreation Area (SVRA) | $25,294 | $29,232 | $40,543 | $68,389 | $15,992 | $179,450 |
| **TOTAL** | **$949,591** | **$668,131** | **$577,103** | **$859,722** | **$163,818** | **$3,218,364** |

Source: BBC Research & Consulting, 2010.

Figure B-9 shows the total expenditures by region.

**Figure B-9.**
**Total Visitor Expenditures by Region (thousand dollars)**

| | Lodging | Food | Supplies | Gasoline | Recreation | Total |
|---|---|---|---|---|---|---|
| **Day Trip Visitors** | | | | | | |
| Central Coast | $167,949 | $117,743 | $84,160 | $132,810 | $26,361 | $529,023 |
| Central Valley | $106,356 | $77,052 | $71,560 | $106,947 | $20,877 | $382,792 |
| Los Angeles | $83,205 | $56,073 | $46,001 | $93,797 | $17,508 | $296,584 |
| Northern California | $110,226 | $68,602 | $46,083 | $70,117 | $13,239 | $308,267 |
| San Francisco Bay Area | $161,111 | $106,324 | $80,729 | $133,518 | $25,329 | $507,012 |
| Sierra | $32,989 | $24,911 | $23,028 | $32,254 | $7,894 | $121,076 |
| Southern California | $252,485 | $188,799 | $150,458 | $212,866 | $39,574 | $844,182 |
| **SUBTOTAL** | **$914,322** | **$639,504** | **$502,019** | **$782,309** | **$150,783** | **$2,988,937** |
| **Camping Visitors** | | | | | | |
| Central Coast | $8,141 | $6,019 | $12,474 | $12,283 | $1,925 | $40,842 |
| Central Valley | $3,658 | $2,490 | $8,665 | $8,456 | $1,431 | $24,701 |
| Los Angeles | $4,485 | $3,835 | $11,039 | $11,881 | $1,876 | $33,116 |
| Northern California | $4,250 | $3,666 | $7,578 | $7,355 | $1,274 | $24,124 |
| San Francisco Bay Area | $2,994 | $2,675 | $7,741 | $8,248 | $1,312 | $22,970 |
| Sierra | $1,307 | $1,096 | $2,826 | $2,672 | $561 | $8,463 |
| Southern California | $10,433 | $8,845 | $24,762 | $26,517 | $4,656 | $75,212 |
| **SUBTOTAL** | **$35,269** | **$28,627** | **$75,084** | **$77,412** | **$13,035** | **$229,428** |
| **All Visitors** | | | | | | |
| Central Coast | $176,091 | $123,761 | $96,634 | $145,093 | $28,287 | $569,865 |
| Central Valley | $110,015 | $79,543 | $80,225 | $115,402 | $22,309 | $407,494 |
| Los Angeles | $87,691 | $59,908 | $57,040 | $105,678 | $19,384 | $329,700 |
| Northern California | $114,476 | $72,268 | $53,662 | $77,472 | $14,513 | $332,391 |
| San Francisco Bay Area | $164,106 | $108,999 | $88,469 | $141,766 | $26,641 | $529,982 |
| Sierra | $34,296 | $26,008 | $25,853 | $34,927 | $8,455 | $129,539 |
| Southern California | $262,917 | $197,644 | $175,220 | $239,383 | $44,230 | $919,394 |
| **TOTAL** | **$949,591** | **$668,131** | **$577,103** | **$859,722** | **$163,818** | **$3,218,364** |

Source: BBC Research & Consulting, 2010.

These total expenditures represent direct economic contributions. For example, day trip visitors to SHPs spent approximately $48 million in 2008 on supplies (groceries, film, bait, gifts, souvenirs, etc.). From the regional perspective, approximately $168 million was spent on lodging in 2008 in the Central Valley region by SPS day trip visitors.

BBC used these direct expenditures as inputs to the IMPLAN model to estimate the indirect economic contribution. This analysis is described in the body of the California State Park System report.

## Estimation of Operating Expenditures

This section details the estimation of operating expenditures by park type and region. BBC developed these estimates based on data from the Statistical Reports.

SPS park units are administratively organized into 25 districts based on location. Each district is made up of one or more sector — also based on location. The Statistical Report identifies the district and sector of each park unit.

The Statistical Report identifies fiscal year operating expenditures at the district-level only — operating expenses are not available at the park unit level. Therefore, to estimate operating expenditures at the region and park type-level, BBC assumed that these expenditures were proportional to visitation levels. The remainder of this section provides an overview of SPS operating expenditures and describes the approach used by BBC to estimate these expenditures by park type and region.

**SPS operating expenditures.** As discussed previously, BBC used the average visitation data from the FY06, FY07 and FY08 Statistical Reports. For consistency, the same data was used for estimating operating expenditures. Figure B-10 shows the number of park units and visitation levels in the 25 districts and the operating expenditures across the three fiscal year period.

**Figure B-10.**
**SPS Districts – Operating Expenditures**

| District | Park Units | Visitation | Operating Expenditures | | | |
|---|---|---|---|---|---|---|
| | | | FY06 | FY07 | FY08 | Average |
| Angeles | 9 | 2,625,327 | $8,237,289 | $9,898,652 | $10,874,996 | $9,670,312 |
| Capital | 7 | 1,118,533 | $7,383,100 | $7,939,265 | $10,306,677 | $8,543,014 |
| Central Valley | 13 | 1,834,094 | $7,483,164 | $8,794,550 | $9,520,067 | $8,599,260 |
| Channel Coast | 8 | 1,809,448 | $6,283,631 | $7,230,829 | $7,717,142 | $7,077,201 |
| Colorado Desert | 5 | 1,448,626 | $5,680,967 | $6,512,723 | $6,696,831 | $6,296,840 |
| Diablo Vista | 12 | 1,495,318 | $5,682,947 | $6,823,173 | $7,111,807 | $6,539,309 |
| Gold Fields | 6 | 2,061,034 | $6,244,920 | $7,957,294 | $9,224,385 | $7,808,866 |
| Hollister Hills OHMVR | 1 | 222,128 | $4,475,202 | $4,789,708 | $5,986,891 | $5,083,933 |
| Hungry Valley OHMVR | 1 | 257,997 | $3,580,711 | $3,832,354 | $4,790,248 | $4,067,771 |
| Inland Empire | 4 | 878,747 | $7,160,373 | $8,204,157 | $8,588,527 | $7,984,352 |
| Marin | 6 | 1,279,609 | $4,030,033 | $5,096,357 | $5,284,012 | $4,803,467 |
| Mendocino | 17 | 3,187,315 | $3,007,358 | $3,645,711 | $3,716,461 | $3,456,510 |
| Monterey | 17 | 3,815,695 | $7,037,965 | $9,934,311 | $10,747,693 | $9,239,990 |
| North Coast Redwoods | 21 | 1,518,631 | $6,366,634 | $8,145,589 | $9,863,601 | $8,125,275 |
| Northern Buttes | 14 | 1,582,347 | $6,109,236 | $7,499,914 | $7,925,245 | $7,178,132 |
| Oceano Dunes OHMVR | 2 | 2,551,515 | $8,812,647 | $9,431,977 | $11,789,492 | $10,011,372 |
| Ocotillo Wells OHMVR | 2 | 1,600,813 | $2,837,542 | $3,036,957 | $3,796,042 | $3,223,513 |
| Orange Coast | 6 | 12,923,587 | $12,292,654 | $13,538,194 | $15,816,122 | $13,882,323 |
| Russian River | 6 | 4,304,502 | $3,554,194 | $4,134,686 | $4,354,663 | $4,014,514 |
| San Diego Coast | 10 | 14,413,694 | $8,982,445 | $9,985,332 | $11,993,021 | $10,320,266 |
| San Luis Obispo Coast | 9 | 4,633,135 | $15,974,838 | $18,440,728 | $19,830,628 | $18,082,065 |
| Santa Cruz | 24 | 9,893,771 | $12,851,231 | $15,506,911 | $16,495,483 | $14,951,208 |
| Sierra | 12 | 1,404,493 | $6,590,900 | $8,316,371 | $8,965,718 | $7,957,663 |
| Tehachapi | 10 | 516,213 | $4,032,077 | $4,661,191 | $4,779,933 | $4,491,067 |
| Twin Cities OHMVR | 2 | 245,080 | $5,474,166 | $5,858,877 | $7,323,298 | $6,218,780 |
| **Total** | **224** | **77,621,652** | **$170,166,224** | **$199,215,810** | **$223,498,982** | **$197,627,005** |

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

BBC estimated operating expenditures for the five Off Highway Motor Vehicle Recreation (OHMVR) districts listed in Figure B-10. In the FY06 and FY07 Statistical Reports, operating expenditures for these districts are not reported individually, but reported in aggregate and assigned to

the OHMVR Division Headquarters' Office. A portion of the operating expenditures in the FY08 Statistical Report are distributed across these five districts, although some operating expenditures were reported for the Headquarters' Office as well. BBC distributed these Headquarters' Office expenditures to the five OHMVR districts based on the relative proportions of operating expenditures for the five districts reported in FY08 Statistical Report. Figure B-11 summarizes these operating expenditures.

**Figure B-11.**
**Estimated OHMVR Operating Expenditures**

| District | Act. Expend FY08 | Proportions | Distribution of Operating Expenditures FY06 | FY07 | FY08 |
|---|---|---|---|---|---|
| **OHMVR Division HQ Office** | | | **$25,180,268** | **$26,949,872** | **$15,680,280** |
| Hollister Hills OHMVR | $3,200,089 | 17.8% | $4,475,202 | $4,789,708 | $2,786,802 |
| Hungry Valley OHMVR | $2,560,464 | 14.2% | $3,580,711 | $3,832,354 | $2,229,784 |
| Oceano Dunes OHMVR | $6,301,672 | 35.0% | $8,812,647 | $9,431,977 | $5,487,820 |
| Ocotillo Wells OHMVR | $2,029,045 | 11.3% | $2,837,542 | $3,036,957 | $1,766,997 |
| Twin Cities OHMVR | $3,914,420 | 21.7% | $5,474,166 | $5,858,877 | $3,408,878 |

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

**Operating expenditures by region.** Not all districts geographically align with regions. As indicated above, BBC assumed operating expenditures are proportional to visitation levels. Both the district and region is known for each park unit. BBC computed the total visitation for each district-region combination. The operating expenditures for each district-region combination were then estimated by multiplying the total district operating expenditures by the proportion of the total district visitation in that district-region combination. Figure B-12 shows each of these components.

**Figure B-12.**
**Operating Costs – Allocation from Districts to Regions**

| District | Region | Number of Parks | Park Visitation | Est. Operating Costs |
|---|---|---|---|---|
| Angeles | Los Angeles | 9 | 2,625,327 | $9,670,312 |
| Capital | Central Valley | 6 | 1,043,704 | $7,971,493 |
| | Sierra | 1 | 74,829 | $571,521 |
| Central Valley | Central Valley | 9 | 1,040,283 | $4,877,430 |
| | San Francisco Bay Area | 2 | 32,565 | $152,682 |
| | Sierra | 3 | 761,246 | $3,569,148 |
| Channel Coast | Central Coast | 5 | 1,311,037 | $5,127,792 |
| | Los Angeles | 4 | 498,411 | $1,949,408 |
| Colorado Desert | Southern California | 5 | 1,448,626 | $6,296,840 |
| Diablo Vista | Northern California | 1 | 1,027 | $4,490 |
| | San Francisco Bay Area | 12 | 1,494,291 | $6,534,819 |
| Gold Fields | Central Valley | 3 | 337,610 | $1,279,140 |
| | San Francisco Bay Area | 1 | 20,684 | $78,368 |
| | Sierra | 3 | 1,702,740 | $6,451,358 |
| Hollister Hills OHMVR | Central Coast | 1 | 222,128 | $5,083,933 |
| Hungry Valley OHMVR | Los Angeles | 1 | 257,997 | $4,067,771 |
| Inland Empire | Southern California | 4 | 878,747 | $7,984,352 |
| Marin | San Francisco Bay Area | 6 | 1,279,609 | $4,803,467 |
| Mendocino | Northern California | 17 | 3,187,315 | $3,456,510 |
| Monterey | Central Coast | 16 | 3,779,955 | $9,153,443 |
| | Central Valley | 1 | 11,079 | $26,830 |
| | San Francisco Bay Area | 1 | 24,661 | $59,717 |
| North Coast Redwoods | Northern California | 21 | 1,518,631 | $8,125,275 |
| Northern Buttes | Central Valley | 5 | 1,116,885 | $5,066,616 |
| | Northern California | 10 | 465,463 | $2,111,516 |
| Oceano Dunes OHMVR | Central Coast | 2 | 2,551,515 | $10,011,372 |
| Ocotillo Wells OHMVR | Southern California | 2 | 1,600,813 | $3,223,513 |
| Orange Coast | Southern California | 6 | 12,923,587 | $13,882,323 |
| Russian River | San Francisco Bay Area | 6 | 4,304,502 | $4,014,514 |
| San Diego Coast | Southern California | 10 | 14,413,694 | $10,320,266 |
| San Luis Obispo Coast | Central Coast | 9 | 4,633,135 | $18,082,065 |
| Santa Cruz | Central Coast | 2 | 806,360 | $1,218,551 |
| | Central Valley | 11 | 6,425,065 | $9,709,391 |
| | San Francisco Bay Area | 13 | 2,662,345 | $4,023,267 |
| Sierra | Northern California | 1 | 77,448 | $438,810 |
| | Sierra | 11 | 1,327,045 | $7,518,853 |
| Tehachapi | Central Valley | 5 | 85,063 | $740,050 |
| | Los Angeles | 3 | 47,637 | $414,443 |
| | Southern California | 2 | 383,513 | $3,336,573 |
| Twin Cities OHMVR | Central Valley | 2 | 170,250 | $4,319,995 |
| | San Francisco Bay Area | 1 | 74,831 | $1,898,786 |

Note: The total number of park units (233) corresponds to the number of park units with visitation – nine of which are located in two regions.
Source: BBC Research & Consulting, 2010.

Eleven out of the 25 districts are split across more than one region. BBC estimated regional operating expenditures by summing the operating expenditures shown in Figure B-12 by region. The estimated operating expenditures by region are shown in Figure B-13.

**Figure B-13.**
**Regional Operating Costs**

Source: BBC Research & Consulting, 2010.

| Region | Operating Costs |
|---|---|
| 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** |

**Park type estimation approach.** BBC used a similar approach for allocating operating expenditures by park type. The analysis allocated costs across the five park types surveyed in the SPVS. Figure B-14 shows the park types within each district, visitation for each park type within a district and the estimated operational expenditures for each park type-district combination.

**Figure B-14.**
**Operating Costs – Allocation from Districts to Park Types**

Source: BBC Research & Consulting, 2010.

| District | Park Type | Park Visitation | Est. Operating Costs |
|---|---|---|---|
| Angeles | SB | 780,401 | $2,874,583 |
| | SHP | 244,585 | $900,921 |
| | SP | 1,600,341 | $5,894,808 |
| Capital | SHP | 1,118,533 | $8,543,014 |
| Central Valley | SHP | 584,239 | $2,739,240 |
| | SP | 288,625 | $1,353,236 |
| | SRA | 961,230 | $4,506,785 |
| Channel Coast | SB | 1,634,315 | $6,392,212 |
| | SHP | 114,446 | $447,627 |
| | SP | 60,687 | $237,362 |
| Colorado Desert | SP | 1,080,509 | $4,696,721 |
| | SRA | 368,117 | $1,600,119 |
| Diablo Vista | SHP | 556,199 | $2,432,364 |
| | SP | 527,483 | $2,306,783 |
| | SRA | 411,636 | $1,800,162 |
| Gold Fields | SHP | 198,606 | $752,480 |
| | SP | 15,203 | $57,601 |
| | SRA | 1,847,225 | $6,998,785 |
| Hollister Hills OHMVR | SVRA | 222,128 | $5,083,933 |
| Hungry Valley OHMVR | SVRA | 257,997 | $4,067,771 |
| Inland Empire | SHP | 54,447 | $494,709 |
| | SP | 174,099 | $1,581,875 |
| | SRA | 650,201 | $5,907,769 |
| Marin | SHP | 19,677 | $73,865 |
| | SP | 1,259,932 | $4,729,603 |
| Mendocino | SB | 334,640 | $362,903 |
| | SHP | 54,109 | $58,679 |
| | SP | 2,798,566 | $3,034,928 |
| Monterey | SB | 2,358,218 | $5,710,601 |
| | SHP | 427,998 | $1,036,429 |
| | SP | 1,029,479 | $2,492,960 |
| North Coast Redwoods | SB | 83,281 | $445,586 |
| | SHP | 42,275 | $226,188 |
| | SP | 1,277,530 | $6,835,289 |
| | SRA | 115,545 | $618,211 |
| Northern Buttes | SHP | 124,243 | $563,614 |
| | SP | 424,953 | $1,927,749 |
| | SRA | 995,874 | $4,517,666 |
| | SVRA | 37,277 | $169,103 |
| Oceano Dunes OHMVR | SB | 671,285 | $2,633,919 |
| | SVRA | 1,880,230 | $7,377,453 |
| Ocotillo Wells OHMVR | SVRA | 1,600,813 | $3,223,513 |
| Orange Coast | SB | 12,222,843 | $13,129,595 |
| | SP | 700,744 | $752,729 |
| Russian River | SHP | 259,417 | $241,940 |
| | SP | 3,779,171 | $3,524,574 |
| | SRA | 265,914 | $248,000 |
| San Diego Coast | SB | 8,178,928 | $5,856,147 |
| | SHP | 5,752,734 | $4,118,982 |
| | SP | 482,032 | $345,137 |
| San Luis Obispo Coast | SB | 169,182 | $660,279 |
| | SHP | 662,248 | $2,584,602 |
| | SP | 3,801,705 | $14,837,184 |
| Santa Cruz | SB | 7,508,437 | $11,346,554 |
| | SHP | 7,839 | $11,846 |
| | SP | 2,377,495 | $3,592,808 |
| Sierra | SHP | 241,651 | $1,369,161 |
| | SP | 1,154,344 | $6,540,353 |
| | SRA | 8,498 | $48,148 |
| Tehachapi | SHP | 47,808 | $415,931 |
| | SP | 84,892 | $738,563 |
| | SRA | 383,513 | $3,336,573 |
| Twin Cities OHMVR | SVRA | 245,080 | $6,218,780 |

The estimated park type operating expenditures are equal to the expenditures shown in Figure B-13 summed by park type. Figure B-15 shows the estimated total operating expenditures by park type.

**Figure B-15.**
**Park Type Operating Costs**

Source: BBC Research & Consulting, 2010.

| Park Type | Operating Costs |
|---|---|
| SB | $49,412,378 |
| SHP | $27,011,592 |
| SP | $65,480,263 |
| SRA | $29,582,218 |
| SVRA | $26,140,554 |
| **Total** | **$197,627,005** |

The combination of visitor expenditures and SPS operating expenditures, by park type and by region, represent the direct economic contribution from SPS operation. As discussed in the body of the California State Park System report, this information was incorporated into IMPLAN models to estimate the overall economic contribution of the SPS.

# APPENDIX C.
# 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 D.
# 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 |
| Supplies | 324 | Retail - Food and beverage |
| | 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 |

Source: BBC Research & Consulting based on IMPLAN, 2010

# APPENDIX E.
# Economic Contribution - Detailed Results by Region

The tables below provide more detailed results of the estimated economic contribution of the CSPS by region than presented in the body of the California State Park System report.

**Figure E-1.**
**Economic Contribution to the Central Coast Region from the CSPS**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

**Figure E-2.**
**Economic Contribution to the Central Valley Region from the CSPS**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

**Figure E-3.**
**Economic Contribution to the Los Angeles Region from the CSPS**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

**Figure E-4.**
**Economic Contribution to the Northern California Region from the CSPS**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

**Figure E-5.**
**Economic Contribution to the San Francisco Bay Area Region from the CSPS**

| | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

**Figure E-6.**
**Economic Contribution to the Sierra Region from the CSPS**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

**Figure E-7.**
**Economic Contribution to the Southern California Region from the CSPS**

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

# APPENDIX F.
# Economic Contribution - Detailed Results by Park Type

The tables below provide more detailed results of the estimated economic contribution of the CSPS by park type than presented in the body of the California State Park System report.

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

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

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

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

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

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

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

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

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

| | Day Trip Vistors | 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 (millon 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** |
| **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** |
| **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** |

Source: IMPLAN, 2010.

# APPENDIX G.
# 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 primarily[1] 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 Colombia 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 additional 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 NAICS[8] 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**

| | Location | | Destination-Based | | | |
|---|---|---|---|---|---|---|
| **Activities** | 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 | |
| Picknicking | 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 by 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.

## References

The following references include sources reviewed during the initial literature review for this study and additional sources of information used in developing the economic contribution and benefits estimates described in Section 2 and Section 3.

Alkire, Carolyn. ***The Value of Recreational Fishing in California: Direct Financial Impacts.*** San Francisco: California Trout, Inc., January 2008.

Argys, Laura M. and Mocan, H. Naci. ***Bicycling and Walking in Colorado: Economic Impact and Household Survey Results.*** Technical Report, Denver: The Colorado Department of Transportation Bicycle/Pedestrian Program, April, 2000.

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

Bureau of Land Management (BLM). Recreation Management Information System (RMIS) – Standard Report 23c for FY 2007, FY 2008, FY 2009. Received via email from Michael Ayers, Outdoor Recreation Program Lead, BLM California State Office. June 2010.

Bureau of Land Management (BLM). Recreation Management Information System (RMIS) – Visitor Days and Participants by Activity Group and Office for FY 2007, FY 2008, FY 2009. Received via mail from Michael Ayer, Outdoor Recreation Program Lead, BLM California State Office. June 2010.

Bureau of Land Management (BLM). California Budget: Recreation Resource Management for FY 2008 and FY 2009. Personal communication between Rob Nauert, California BLM Program Analyst Officer and Josh Sidon, BBC Research & Consulting. September 2010.

California Department of Boating and Waterways. ***California Boating Facilities Needs Assessment.*** 2002.

California Department of Fish and Game. ***Report of the 2007 Game Take Hunter Survey.***

California Department of Fish and Game. ***Report of the 2006 Game Take Hunter Survey.***

California Department of Parks and Recreation. ***California State Parks Visitor Survey***. Unpublished survey database, 2009.

California Department of Parks and Recreation. ***Complete Findings: Survey on Public Opinions and Attitudes on Outdoor Recreation in California 2009***. Report and unpublished survey database.

California Department of Parks and Recreation. ***Economic Impacts on Local Economies by Visitors to California State Parks from 1999-2002: An Update of the 1995 Analysis***. November 2001.

California Department of Parks and Recreation. ***The California State Park System Statistical Report: 2008/09 Fiscal Year***.

California Department of Parks and Recreation. ***The California State Park System Statistical Report: 2007/08 Fiscal Year***.

California Department of Parks and Recreation. ***The California State Park System Statistical Report: 2006/07 Fiscal Year***.

California Department of Water Resources. ***Recreation Activity, Spending and Associated Economic Impacts. Oroville Facilities Relicensing FERC Project Number 2100.*** May 2004.

California State Parks. ***The Health and Social Benefits of Recreation***. March 2005.

California State Parks. ***The Impact on Local Economies of Spending by Visitors to California State Parks.*** October 1995.

Chang, Wen-Huei, et. al. ***Recreation Visitor Spending Profiles and Economic Benefit to Corps of Engineers Projects.*** December 2003.

Colorado State Parks. 2008 ***Colorado Statewide Comprehensive Outdoor Recreation Plan***. September, 2008.

Crompton, John L. "The Impact of Parks on Property Values: Empirical Evidence from the Past Two Decades in the United States." ***Managing Leisure***: Vol. 10, pp. 203-218, October 2005.

Crompton, John L. "The Impact of Parks on Property Values: A Review of the Empirical Evidence." ***Journal of Leisure Research***: Vol. 33, No. 1, pp. 1-31, 2001.

Cunningham, Kelly and Bruvold W. Erik. ***San Diego's Golf Economy.*** San Diego: National University System Institute for Policy Research, 2010.

Dean Runyon Associates. ***Campers in California: Travel Patterns and Economic Impacts.*** Prepared for The California Roundtable on Recreation, Parks and Tourism and California Tourism. July 2000.

Department of the Army Office. Civil Works Budget for the U.S. Army Corps of Engineers for FY 2008 and FY 2009.

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

Economic & Planning Systems, Inc. ***Regional Economic Analysis Trends, Year 2000 & Beyond: East Bay Regional Park District.*** Berkeley: Economic & Planning Systems, Inc., 2000.

Garrett, Bodhi and Fred Wu. ***National Treasures as Economic Engines, the Economic Impact of Visitor Spending in California's National Parks.*** Prepared for the National Parks Conservation Association. Undated report, based on 2001 data.

Gentner, Brad, and Michael and Steinback, Scott Price. ***Marine Angler Expenditures in the Pacific Coast Region, 2000.*** NOAA Technical Memorandum, Silver Spring, MD: United States Department of Commerce, October, 2001.

Godbey, Geoffrey. ***Outdoor Recreation, Health, and Wellness***. Washington, DC: Resources for the Future, May 2009.

Golf 20/20. ***The California Golf Economy Report.*** Prepared by SRI International. July 2008.

Grabow, Maggie, Micah Hahn, and Whited Melissa. ***Valuing Bicycling's Economic and Health Impacts in Wisconsin.*** Technical Report, Madison, WI: The Nelson Institute for Environmental Studies Center for Sustainability and the Global Environment - University of Wisconsin-Madison, 2010.

Haydu, John and Hodges, Alan. ***Economic Dimensions of the Florida Golf Course Industry.*** Gainsville, FL: Department of Food and Resource Economics at the University of Florida, 2002.

IMPLAN. 2008 Implan State Package for California. Purchased June 2010.

JKInc. ***The Economic Impact of State Parks on California's Economy: Final Report.*** Prepared for California State Parks. December 19, 2002.

Lawrie, Judson and others. ***The Economic Benefit of Investments in Bicycle Facilities: A Case Study of the Northern Outer Banks.*** Technical Report, Raleigh, NC: N.C. Department of Transportation Division of Bicycle and Pedestrian Transportation, July 2004.

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

Loomis, John. ***Updated Outdoor Recreation Use Values on National Forests and Other Public Lands.*** Department of Agriculture, Forest Service, Pacific Northwest Research Station. 2005. Also links to database with benefits estimates and other information from each of the studies included.

Louis Berger Group, Inc. ***Economic Contribution of Highway Vehicle Recreation in Colorado.*** Lakewood, CO: Colorado Off-Highway Vehicle Coalition, July, 2009.

Lutzenhiser, M. and N. Netusil. "The Effect of Open Spaces on a Home's Sale Price." ***Contemporary Economic Policy***: Vol. 19, No. 3, pp. 291-298, July 2001.

McCoy, N., et. al. ***An Economic and Social Assessment of Snowmobiling in Utah.*** Logan, Utah: Utah State University, 2001.

National Marine Manufacturers Association (NMMA). ***2009 Recreational Boating Statistical Abstract*** and ***2007 Recreational Boating Statistical Abstract.***

National Park Service. ***NPS Stats.*** Available at http://www.nature.nps.gov/stats/state.cfm?st=ca. Accessed in June 2010.

National Park Service Social Science Program. Visitor Service Project – Visitor Study. All available reports for California units. Available at: http://psu.uidaho.edu/vsp.reports.htm. 1993 through 2009.

National Sporting Goods Association (NSGA). ***The Sporting Goods Market in 2010.***

Nelsen, Chad, and Ryan and Pendleton, Linwood Vaughn. "A Socioeconomic Study of Surfers at Trestles Beach." ***Shore & Beach***, 2007: Vol. 75, No. 4, p. 32-37.

New Point Group Management Consultants. ***Non-Motorized Boating in California.*** Research Study, Sacramento: California Department of Boating and Waterways, March 2009.

The Outdoor Industry Foundation. ***Outdoor Recreation Participation Report 2009.*** Boulder, Colorado, 2009.

Paradigm Consulting Group. ***Sea to Sky Mountain Biking Economic Impact Study.*** Overall Results, Vancouver, BC, Canada: Western Canada Mountain Bike Tourism Association , 2007.

Pendleton, Linwood H. and Rooke, Jaime. ***Understanding the Potential Economic Impact of Marine Recreational Fishing: California.*** Literature Review Paper, Los Angeles: Environmental Science and Engineering Program UCLA, 2006.

Pendleton, Linwood H. and Rooke, Jaime. ***Understanding the Potential Economic Impact of SCUBA Diving and Snorkeling: California.*** Los Angeles: Environmental Science and Engineering Program UCLA, 2006.

Pollock, Noah. ***Economic Impact Assessment of Paddler Recreation in the Adirondacks.*** University of Vermont Tourism Data Center, 2007.

Recreational Fisheries Information Network (RecFIN). ***California Recreational Fisheries Survey***. 2008.

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.

Rust, Edgar and Potepan, Michael. ***The Economic Impact of Boating in California.*** San Francisco, CA: California Department of Boating and Waterways, 1997.

SRI International. ***The California Golf Economy Report.*** Economic Impact Study, California Alliance for Golf, July 2008.

Southwick Associates, Inc. ***State-Level Economic Contributions of Active Outdoor Recreation – Technical Report on Methods and Findings.*** Fernandina Beach, Florida: Outdoor Industry Foundation, 2007.

Southwick Associates, Inc. ***The Economic Contribution of Active Outdoor Recreation – Technical Report on Methods and Findings.*** Fernandina Beach, Florida: Outdoor Industry Foundation, July 9, 2006.

Stynes, Daniel J. MGM2 Parameters and Results for California National Park Units. Personal communication between Daniel Sytnes, Michigan State University and Josh Sidon, BBC Research & Consulting. June and August, 2010.

Stynes, Daniel J. ***Impacts of Visitor Spending on the Local Economy: Lava Beds National Monument, 2007.*** Prepared for the National Park Service Social Science Program. March 2009.

Stynes, Daniel J. "Economic Significance of Recreational Uses of National Parks and Other Public Lands." ***Social Science Research Review.*** Volume 5, Number 1, Winter, 2005.

Stynes, Daniel J. and E. M. White. ***Spending Profiles of National Forest Visitors, NVUM Four Year Report***. May 2005.

The Trust for Public Land. ***How Much Value Does the City of Sacramento Receive from its Park and Recreation System?*** Prepared for the City of Sacramento Department of Parks and Recreation, 2008.

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

The Washington Economics Group, Inc. ***The Economic Impact of Sports and Recreation Activities in Florida.*** Prepared for the Florida Sports Foundation, Inc. July 1, 2005.

Thorsnes, Paul. "The Value of a Suburban Forest Preserve: Estimates from Sales of Vacant Residential Building Lots." ***Land Economic***: Vol. 78, No. 3, pp. 426-441, August 2002.

U.S. Army Corps of Engineers. ***Value to the Nation – Fast Facts for California, 2006 Lake Level Reports.*** Available at http://www.corpsresults.us/recreation/state.asp?state=CA#.

U.S. Army Corps of Engineers. ***Economic Guidance Memorandum, 10-03, Unit Day Values for Recreation, Fiscal Year 2010***. Memorandum for Planning Community of Practice. November 20, 2009.

U.S. Census Bureau. 2007 Economic Census – Sector 71: Arts, Entertainment and Recreation.

USDA Forest Service. National Visitor use Monitoring Results. Reports for each of California's National Forests. Available at: http://www.fs.fed.us/recreation/programs/nvum/. 2009 and 2010.

U.S. Department of the Interior (DOI). ***Economic Impact of the Department of the Interior's Programs and Activities – Preliminary Report.*** December 15, 2009.

U.S. Department of Agriculture – Forest Service. ***Fiscal Year 2010 President's Budget – Budget Justification.***

U.S. Department of the Interior. FY 2010 Budget Justifications by State – California Park Operational Base Summary. Available at: http://home.nps.gov/applications/budgetweb/fy2010/sbtoc.htm.

U.S. Fish and Wildlife Service (FWS). Refuge Allocations, Visitor Services -1263 for FY 2008 and FY 2009. Received via email from Doug Damberg, Assistant Refuge Supervisor, USFWS Pacific Southwest Region. October 2010.

U.S. Fish and Wildlife Service (FWS). Refuge Annual Performance Planning (RAPP) system – Visitation for 2006 and 2009. Received via email from James Caudill, Division of Economic, FWS. October 2010.

U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. ***2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation***. 2006.

Walls, Margaret; Sarah Darley and Juha Siikamaki. ***The State of the Great Outdoors: America's Parks, Public Lands, and Recreation Resources.*** Resources for the Future. September 2009.

Wildernet.com ***– California's County and Regional Parks – Recreation Areas Guides - Summaries.*** Downloaded August 30, 2010.