

# Marine Angler Expenditures in the Pacific Coast Region, 2000

**Brad Gentner  
Michael Price  
Scott Steinback**



**U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service**

**NOAA Technical Memorandum NMFS-F/SPO-49  
October 2001**

State Water Resources Control Board  
Hearing Name IID Transfer - Phase 2  
Exhibit: **B**  
For Ident: \_\_\_\_\_ In Evidence: \_\_\_\_\_

### **ACKNOWLEDGMENTS**

The authors thank the Marine Recreational Fisheries Statistics Survey team of the Fisheries Statistics and Economics Division, National Marine Fisheries Service for assistance in producing this document. In particular, we wish to extend our appreciation to Dr. Dave Van Voorhees who provided invaluable advice and assistance on the statistical methodologies employed for this research. We also thank Alan Lowther and Maury Osborn for their help in explaining the nuances of the survey. Also we would like to thank Dr. Amy Gautam for her editorial assistance. Finally we would like to thank Charles Gardner for the photograph used on the cover.

04/09/2001 10:13 7146483148 UNITED ANGLERS PAGE 03

# Marine Angler Expenditures in the Pacific Coast Region, 2000

**Brad Gentner**  
NMFS Office of Science and Technology  
Fisheries Statistics and Economics Division  
1315 East West Highway  
Silver Spring, MD 20910

**Michael Price**  
NMFS Office of Science and Technology  
Fisheries Statistics and Economics Division  
1315 East West Highway  
Silver Spring, MD 20910

**Scott Steinback**  
Social Sciences Branch  
NMFS Northeast Fisheries Science Center  
166 Water Street  
Woods Hole, MA 02543-1026

NOAA Technical Memorandum  
NMFS-F/SPO-49  
October 2001



U.S. DEPARTMENT OF COMMERCE  
Donald Evans, Secretary

National Oceanic and Atmospheric Administration  
Scott B. Gudes, Acting Under Secretary

National Marine Fisheries Service  
Bill Hogarth, Acting Assistant Administrator

# Contents

- Executive Summary** ..... vii
- Introduction** ..... 1
  - The Marine Recreational Fisheries Statistics Survey ..... 2
    - The Base Surveys ..... 2
    - Expenditure Surveys ..... 2
    - Response Rates ..... 3
- Methods** ..... 5
  - Average Expenditures ..... 4
  - Sample Variability ..... 4
  - Procedure to Correct for Avidity Bias ..... 5
  - Total Expenditures ..... 6
- Results** ..... 9
  - Average Expenditures ..... 8
  - Total Expenditures ..... 8
- State-by-State Expenditure Summaries**
  - Southern California ..... 11
  - Northern California ..... 13
  - California (All) ..... 15
  - Oregon ..... 17
  - Washington ..... 19
  - Pacific Coast Totals ..... 21
  - United States Totals ..... 23
- Discussion** ..... 25
  - Future Research ..... 25
  - Endnotes ..... 26
  - References ..... 27
- Appendix 1: Intercept Add-on Survey Instrument**..... 29
- Appendix 2: Phone Follow-up Survey Instrument**..... 35
- Appendix 3: Random Household Add-on Survey Instrument**..... 49

**I**n 2000, a recreational fishing expenditure survey was conducted in the Pacific Coast region as an add-on to the National Marine Fisheries Service's Marine Recreational Fisheries Statistics Survey (MRFSS). This report summarizes the results of the expenditure survey, and provides state-level estimates of direct sales resulting from anglers' expenditures in 2000.

## Executive Summary

Anglers' daily trip expenditures are reported for each state and fishing mode by resident type (i.e., state resident or non-resident). Expenditures on fishing equipment and other semi-durable and durable items used primarily for saltwater recreational fishing are provided at the state-level. Sample descriptive statistics (means, weighted means, and standard errors) are presented by state for all expenditure estimates and confidence intervals calculated for the total expenditure statistics. Total resident expenditures were considerably larger than that of non-residents. Across all Pacific Coast states, recreational anglers spent between \$574 million and \$2.5 billion on marine recreational fishing in 2000, with Southern California anglers spending the most. Across all Pacific Coast states, recreational fishing expenditures in 2000 totaled \$4.5 billion. Nationwide, recreational fishing expenditures total \$21 billion.

Over 2.2 million saltwater anglers fished 8.5 million days in the Pacific Coast region of the U.S. (California through Washington) in 2000 (NMFS 2001). In addition to the leisure benefits these anglers received from participating in saltwater fishing, their expenditures generated monetary benefits in the form of sales, income, and employment throughout the Pacific Coast. A variety of goods and services were purchased from sporting goods stores, specialty stores, bait and tackle shops, guide services, marinas, grocery stores, automobile service stations, and restaurants. The economic impacts of these purchases rippled throughout the Pacific Coast's economy and provided income and jobs in manufacturing, transportation industries, and service sectors.

With the passage of the Sustainable Fisheries Act (P.L. 104-297) in 1996, which amended the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Congress mandated the analysis of economic impacts of management policies on fishing participants and coastal communities. A similar appraisal is also required under the National Environmental Policy Act (NEPA) and Executive Order 12866. As a result, in 2000 the National Marine Fisheries Service (NMFS) conducted an economic expenditure survey on the Pacific Coast (PC) of the United States to evaluate recreational fishing expenditures and the economic impacts generated from

these expenditures in this region. The expenditure survey was conducted as part of the 2000 Marine Recreational Fishery Statistics Survey (MRFSS) in the PC and was a follow-up to a comprehensive PC marine recreational economic survey conducted in 1998 (Gentner and Lowther, forthcoming).

The purpose of this report is to summarize the results of the 2000 economic expenditure survey and to provide state-level estimates of direct sales resulting from anglers' expenditures in the PC in 2000. Summary statistics presented in this document will be used in the future to assess total sales, income, and employment generated from angler expenditures.

The report begins with a brief description of the base MRFSS and the economic data collection methods used to date. Survey response rates are then discussed followed by a review of the procedures used to estimate expenditures. Sample statistics (means, weighted means, and standard errors) are provided by state for all expenditure estimates and confidence intervals are shown for the total expenditure statistics. Two previous publications, Steinback and Gentner (2001) and Gentner, Price and Steinback (2001), estimated these same expenditures for the Northeast and Southeast United States respectively. Because this is the last publi-

## Introduction

cation in this series, this report also presents the total expenditure estimates across the entire United States. The report concludes with a review of major findings and a discussion of future research.

## **The Marine Recreational Fisheries Statistics Survey**

### **The Base Surveys**

Since 1979, the MRFSS has collected data to estimate the total bi-monthly fishing effort (number of days fished), participation, and finfish catch by marine recreational anglers on the Pacific Coast. The MRFSS consists of two independent yet complementary surveys: an intercept survey of marine anglers at fishing access sites and a random digit dial (RDD) telephone survey of coastal county households.

The intercept survey was designed to provide a random sample of all marine recreational fishing trips. Data from the intercept survey are primarily used to estimate mean catch-per-trip by species. Participation and effort are estimated using data acquired through the RDD survey of coastal households. Coastal county households are sampled randomly using the random digit dialing technique described by Groves et al. (1988).

All anglers in a contacted household are identified, and each is asked about his fishing activity during the previous two-month period. The RDD survey

therefore provides data to estimate effort and participation by coastal residents living in households with telephones. Ratios from the intercept survey are used to correct these effort estimates to account for non-coastal residents and coastal residents who do not have telephones, as those groups are not covered in the household sampling frame. Readers unfamiliar with the MRFSS sampling procedures are encouraged to review Gray et. al (1999) for further details.

### **Expenditure Surveys**

To take advantage of sampling, survey design, and quality control procedures already in place, the economic survey was designed as an add-on to the MRFSS. The economic expenditure survey involved three phases. The first phase added a series of questions to the MRFSS intercept survey, linking basic economic information to trip-specific catch information and behavior. Intercepted anglers were then asked to participate in the second phase of the survey, the telephone follow-up. The telephone follow-up solicited detailed expenditure data. The third phase added several of the expenditure questions asked on the follow-up survey to the RDD survey of coastal household residents.

The intercept survey collected information from day-trip anglers only (Appendix 1). It was felt that multi-day (overnight) anglers would not be able to adequately calculate trip expenditures if they were intercepted mid-trip.

Day-trip anglers were asked detailed questions regarding their expenditures for the current trip, including items such as food, refreshments, lodging, travel costs, boat fuel, charter fees, access or boat launching fees, equipment rental, bait, and ice. All anglers were then asked if they would like to participate in a follow-up survey and, if so, their phone number was collected.

The telephone follow-up survey collected detailed expenditure data from both day-trip and overnight anglers (Appendix 2). Information collected from overnight anglers included: number of days away from residence, number of days spent fishing, whether or not the primary purpose of the trip was for fishing, and the same trip expenditure categories the day trip anglers were asked on the intercept survey. All anglers were then asked about other expenditure categories including fishing equipment and semi-durable items (rods, reels, lines, tackle, magazines, club dues, special fishing clothing, camping gear, binoculars, and taxidermy), and durable goods (motor boats and accessories, non-motorized boats, boating electronics, mooring, boat storage, boat insurance and vehicles or second homes used primarily for marine angling).

The RDD add-on survey was designed so that expenditure responses from a random sample of households could be compared to responses from a random sample of trips (i.e., to both the inter-

cept and telephone follow-up surveys). As such, it collects a similar set of expenditure elements (Appendix 3).

### Response Rates

A total of 37,078 economic intercepts were attempted and 34,668 (94%) were completed. Approximately 47% (17,341) of the respondents that completed the economic intercept survey agreed to participate in the economic follow-up survey. However, only 12,683 of these anglers (73%) completed the entire economic follow-up questionnaire. Anglers that could not be reached in six calls comprised the majority of the non-respondents, followed by wrong numbers and a small number of refusals. For the RDD survey, a total of 73,708 households were contacted; 2,464 of these were identified as saltwater fishing households. Of the fishing households, 1,900 (77%) successfully completed the RDD survey.



## Methods

### Average Expenditures

**A**verage daily trip expenditures were estimated for each state and fishing mode (party/charter boat; private/rental boat; and shore) by resident type (resident or non-resident). Anglers reported making two types of trips: day trips and multi-day (overnight) trips. Overnight anglers were asked to report trip length, number of days fished, and total trip cost.

For overnight anglers, average daily costs for expenditures directly related to fishing, such as boat fuel, guide or package fees, access and/or boat launching fees, equipment rental (boat, fishing or camping equipment), bait, ice, and public transportation were calculated by dividing the total amount spent by the number of days fished. For expenditures not directly associated with fishing (e.g., food/drink/refreshments and lodging at motels/cabins/lodges/campgrounds, etc.), average daily costs were derived by dividing total expenses on multi-day (overnight) trips by the length of these trips. This approach for estimating indirect average costs per day assumes constant daily food, beverage, and lodging expenditures for anglers on overnight trips.

Additional procedures were required to estimate private transportation costs. Round-trip mileage traveled in each state where fishing trips occurred was estimated using PCMILER software (ALK Associates, Inc. 1995) and

multiplied by 12.2 cents per mile (American Automobile Association estimate of the average per mile variable cost of operating a car in 2000) to calculate state-level private travel expenses.<sup>1</sup> For overnight trips, daily expense estimates were determined by dividing total in-state expenses by the number of days fished on the trip. Finally, since anglers identified how many people shared trip expenses, each angler's total daily transportation expense was divided by the average number of contributors, by state and mode.

Apart from trip-related expenditures, anglers also purchase fishing equipment and other durable items used primarily for saltwater recreational fishing. Annual estimates of average angler expenditures for fishing equipment, semi-durable, and durable items were calculated with data collected from the telephone follow-up survey.

### Sample Variability

The RDD survey incorporates uniform selection probabilities with respect to contacting individuals. That is, avid anglers were just as likely to be interviewed as those that fished less frequently. In contrast, the probability of selection for the intercept survey was uniform across fishing trips, but higher for participants who fished more frequently. As a result, avid anglers were disproportionately represented in the intercept sample. This avidity bias does not affect the estimation of anglers' daily trip expenditures since the

selection probability was uniform across fishing trips. However, the bias may affect the annual expenditure estimates to the extent they are correlated with avidity.

Linear regression analysis of a similar data set for the Northeast Region (Maine through Virginia) indicated a positive relationship between expenditures and avidity (Steinback and Gentner, 2001). This relationship held for almost all categories of annual expenditures. This suggests that more avid anglers spend more money on annual fishing expenses.

In two previous studies of similar data in the Northeast (Steinback and Gentner, 2001) and Southeast (Gentner, Price, and Steinback 2001) regions, one-way analyses of variance (ANOVA) tests revealed that intercepted anglers fished significantly more days per year, on average, than those contacted randomly over the phone for the RDD survey.

In addition, average expenditures on durable goods, semi-durable goods, and fishing equipment were compared between the two surveys. In almost all cases, average expenditures estimated from the intercepted respondents were significantly higher ( $P < 0.05$ ) than the estimates obtained from the RDD survey. The ANOVA results were not surprising considering the sample selection differences between the intercept and RDD surveys. Because of the positive relationship between avidity and expenditures found in

previous surveys, it is assumed that the intercepted responses on the Pacific Coast are also upwardly biased. To correct for the avidity bias, weighted means were calculated as described below.

### Procedure to Correct for Avidity Bias

Using a procedure adapted from Thomson (1991), estimates of means were computed as follows:

$$(1) \quad \hat{R} = \frac{\sum_k \frac{Y_k}{X_k}}{\sum_k \frac{1}{X_k}}$$

where  $\hat{R}$  is the weighted mean (the "hat" notation denotes estimated quantities);  $Y_k$  is the expenditure of angler  $k$ ;  $X_k$  is the avidity of angler  $k$ ; and  $s$  represents the population sample. Equation (1) corrects for the unequal selection probabilities of intercepted anglers due to the avidity bias and produces consistent estimates of mean expenditures with relatively high precision.<sup>2</sup> The associated variance,  $\hat{V}(\hat{R})$ , developed by Thomson (1991), was estimated by

$$(2) \quad \hat{V}(\hat{R}) = \left[ \frac{\sum_k \frac{Y_k}{X_k}}{\sum_k \frac{1}{X_k}} \right]^2 \frac{1}{m} \left[ \frac{S_Y^2}{\hat{R}^2} + \frac{S_X^2}{1} - \frac{2S_{YX}}{\hat{R}} \right]$$

## Methods

where

$$S_{\frac{Y}{X}}^2 = \frac{1}{m-1} \left[ \sum_i \left( \frac{Y_i}{X_i} \right)^2 - m \left( \frac{\bar{Y}}{\bar{X}} \right)^2 \right]$$

$$S_{\frac{1}{X}}^2 = \frac{1}{m-1} \left[ \sum_i \left( \frac{1}{X_i} \right)^2 - m \left( \frac{1}{\bar{X}} \right)^2 \right]$$

and

$$S_{\left(\frac{Y}{X}\right)\left(\frac{1}{X}\right)} = \frac{1}{m-1} \left[ \sum_i \frac{Y_i}{X_i^2} - m \frac{\bar{Y}}{\bar{X}} \frac{1}{\bar{X}} \right]$$

$m$  is the number of observations in the sample.  $\bar{Y}$  is the sample mean of  $Y_i$ ,  $\frac{1}{\bar{X}}$  is the sample mean of the inverse of  $X_i$ , and  $\frac{\bar{Y}}{\bar{X}}$  is the sample mean of the inverse of avidity for each angler  $k$ .

Angler expenditure estimates were further adjusted using other information, where possible. Boat related expenditures (boat purchases, boat maintenance, and boat accessories) were weighted by the percent of time the boat in question was used for saltwater recreational angling. For equipment expenditures (rods/reels, other tackle, and gear), anglers were asked to estimate the proportion of trip and equipment expenditures spent in the intercept state. This

proportion was used to adjust the expenditure estimates from the intercept survey prior to calculating weighted means for the equipment expenditures. Because non-resident anglers were not asked the proportion of annual expenditures made in the PC state of intercept, non-resident expenditures were not estimated for any of the annual expenditure categories.

### Total Expenditures

Arithmetic mean daily trip expenditures were multiplied by MRFSS estimates of total fishing effort (i.e., days fished in 2000; Table 1) to derive total expense estimates. Estimates were calculated by state, mode, and resident status. The variances of the

Table 1. Estimated Number of Days Fished by State, Mode, and Resident Status 2000.<sup>1</sup>

State	Mode <sup>2</sup>	Resident	Non-Resident	Total
Southern California	pc	840,443	115,613	956,256
	pr	1,685,297	69,205	1,754,502
	sh	1,040,109	31,390	1,071,500
	Total	3,565,849	216,408	3,782,257
Northern California	pc	198,257	39,429	237,686
	pr	963,959	30,961	994,920
	sh	912,402	21,967	934,369
Total	2,074,628	92,377	2,167,005	
California (all)	pc	1,038,710	155,242	1,193,952
	pr	2,649,256	100,165	2,749,421
	sh	1,952,511	53,378	2,005,889
	Total	5,640,477	308,785	5,949,262
Oregon	pc	67,677	32,544	100,221
	pr	518,355	70,498	588,853
	sh	189,790	22,454	212,244
	Total	775,822	125,496	901,318
Washington	pc	30,925	2,905	33,830
	pr	1,092,650	35,993	1,128,653
	sh	428,241	37,714	465,955
	Total	1,551,826	76,612	1,628,439

<sup>1</sup>Estimates will vary slightly from NMFS (2001) due to rounding.

<sup>2</sup>pc = party/charter; pr = private/rental; sh = shore

total expenditure estimates were calculated according to Gray (1999) as follows:

(3)

$$\hat{V}(\hat{T}\hat{R}) = \hat{T}^2\hat{V}(\hat{R}) + \hat{V}(\hat{T})\hat{R}^2 - \hat{V}(\hat{T})\hat{V}(\hat{R}),$$

where  $\hat{T}$  is the estimate of angler effort and  $\hat{R}$  is the arithmetic expenditure mean of the sample. Goodman (1960) showed that Equation (3) produces an unbiased variance estimate when  $\hat{R}$  and  $\hat{T}$  are independent random variables. Because trip-related items were collected randomly and estimates of  $R$  and  $T$  were calculated from different surveys, the variables were

resident status (Table 2)<sup>3</sup>. The resultant variance was calculated by substituting the MRFSS estimates of participation and variance in each strata for  $\hat{T}$  and  $\hat{V}(\hat{T})$  in equation (3), and the weighted mean expenditures and variances estimated from equations (1) and (2) for  $\hat{R}$  and  $\hat{V}(\hat{R})$ . Standard errors were calculated from the resulting variance estimates for each expenditure item and confidence intervals were generated at the 95% level.

Table 2. Total Estimated Number of Participants by State and Resident

State	Resident	Non-Resident	Total
Southern California	1,097,232	168,823	1,266,055
Northern California	387,927	51,221	439,148
California (all)	1,485,159	220,044	1,705,203
Oregon	285,806	79,810	365,417
Washington	449,912	48,547	498,459

<sup>3</sup>These participation estimates are not additive across states. A participant could have fished in more than one state. See NMFS (2001) for total Pacific Coast region participation estimates.

considered to be random and independent. Standard errors, derived from equation (3), were used to generate confidence intervals for trip-related expenditures at the 95 percent level.

Total estimated annual expenditures were calculated by multiplying the weighted mean expenditures per participant by MRFSS estimates of total fishing participation by state and

## Average Expenditures

**S**ummary statistics (arithmetic means or weighted means, and standard errors) by state are presented for two nonexclusive groups of anglers: all respondents and spenders (Tables 3, 5, 8 and 10). The 'spenders' estimates include only responses of individuals who reported an expense, while both spenders and non-spenders are included in the 'all' category. Statistics are reported by state, resident category, and mode for the daily trip expenditures and only by state for the annual expenditures by residents.

Average daily trip expenditures for non-residents were generally higher than for residents in all of the coastal states in the PC. Non-residents tended to travel further within the fishing state and tended to make multi-day trips that required overnight lodging. In Southern California, for example, non-residents fishing from party or charter boats spent \$65.62, on average, for private transportation and \$59.55 for lodging (Table 3). Expenditures by resident anglers fishing aboard party or charter boats, on the other hand, averaged \$9.78 for private transportation and \$1.18 for lodging.<sup>4</sup>

Overall, non-residents tended to spend more than their resident counterparts for most purchases. This anomaly is not easily explained. Non-resident anglers may lack the time or local knowledge that residents have to compare prices for trip items such as charter guide fees, equipment rental, food, bait, and ice. Non-residents may also be less experienced and may simply overspend to ensure they will have adequate supplies for the trip. The largest daily trip expenditures across most of the states were for food/drink/refreshments, private transportation, boat fuel, lodging, and charter guide fees.

For the annual expenditure items, estimates could only be generated for residents of Pacific coastal states. Residents' highest annual expenditures by far were for boat purchases, boat accessories, boat maintenance, and fishing vehicle purchases. In addition, average durable expenditures by resident 'spenders' were substantially higher than estimates generated from all residents. In Southern California, for example, the average weighted annual boat expense for spenders was \$5,365.14 and only \$465.55 across all anglers (Table 3).

### Total Expenditures

Total expenses and 95 percent confidence intervals are shown for all expenditure items by state and residence strata (Tables 4, 6, 7, 9, 11, 12, and 13). The precision of the expenditure estimates can be evaluated by examining the difference between the estimate and the upper and lower bounds.

Total resident trip-related expenditures within the private/rental modes exceed non-residents' expenditures across all states because of higher participation than non-residents. For example, in Southern California even though non-residents' average expenditures in the private/rental mode were almost six times the average expenditures of residents, total expenditures of residents in the same mode were more than four times higher than non-residents. Total resident trip-related expenditures within the shore mode exceed non-residents' expenditures across all states. Total resident trip expenditures within the charter mode exceed non-resident expenditures across all states.

In total, resident and non-resident anglers in Southern California exhibited the highest recreational fishing expenditures in the PC region. Anglers fishing in California spent \$2.5 billion on marine recreational fishing in 2000 (Table 7). Across all PC states, total recreational fishing expenditures totaled \$4.5 billion (Table 12).

Table 3. Southern California Average Expenditures by Mode and Resident Status, 2000.

SOUTHERN CALIFORNIA		Residents				Non-Residents			
Trip Expenditures	Mode	All (\$)		Spenders (\$)		All (\$)		Spenders (\$)	
		Mean	Standard Error	Mean	Standard Error	Mean	Standard Error	Mean	Standard Error
Private Transportation	Party/Charter	9.78	0.22	9.78	0.22	95.62	1.91	95.62	1.91
	Private/Rental	7.07	0.16	7.07	0.16	74.87	6.69	74.87	6.69
Food	Shore	6.49	0.29	6.49	0.29	73.94	8.10	73.94	8.10
	Party/Charter	12.62	0.35	13.69	0.37	36.01	2.23	39.07	2.25
Lodging	Private/Rental	7.54	0.20	8.99	0.22	17.53	2.12	17.39	2.13
	Shore	5.57	0.36	8.02	0.48	21.85	5.26	23.67	5.36
Public Transportation	Party/Charter	1.18	0.30	72.42	12.68	59.55	5.91	92.30	7.48
	Private/Rental	0.82	0.21	92.14	29.11	29.33	7.43	63.76	15.71
Boat Fuel	Shore	2.76	0.70	56.81	11.00	41.45	14.07	87.50	20.86
	Party/Charter	0.61	0.32	90.22	50.01	293.90	28.48	447.92	41.32
Access/Boat Launching	Private/Rental	0.03	0.01	6.85	2.42	61.43	23.46	228.98	66.25
	Shore	0.16	0.08	9.98	3.98	16.07	15.60	85.69	82.16
Equipment Rental	Private/Rental	12.88	0.34	14.29	0.36	21.57	3.48	26.09	3.70
	Party/Charter	55.43	1.99	56.47	2.02	37.40	3.99	44.12	4.01
Bait & Ice	Party/Charter	0.96	0.12	3.28	0.39	2.96	0.73	10.41	2.28
	Private/Rental	1.54	0.06	3.52	0.09	2.37	0.84	3.77	1.02
Shore	Party/Charter	0.83	0.07	2.75	0.14	5.29	3.72	14.10	9.28
	Private/Rental	1.81	0.24	12.90	1.51	34.97	4.84	60.46	7.46
Total	Private/Rental	0.72	0.08	16.64	1.05	7.71	2.89	35.14	6.64
	Shore	0.14	0.08	18.97	7.39	0.94	0.54	5.03	1.18
Party/Charter	Party/Charter	0.27	0.03	3.65	0.34	2.32	0.46	8.03	1.34
	Private/Rental	6.87	0.14	6.75	0.15	11.02	1.42	13.36	1.42
Shore	Party/Charter	2.64	0.71	4.84	1.25	6.21	1.59	6.63	1.65
	Private/Rental	82.56	2.10	188.19	14.28	494.71	29.84	372.63	13.42
Total	Private/Rental	37.16	0.50	168.19	26.23	220.22	26.03	305.09	27.06
	Shore	18.70	1.11	105.67	13.89	185.75	23.47	214.41	24.95
Annual Expenditures		All (\$)		Spenders (\$)		All (\$)		Spenders (\$)	
Rods and Reels		55.01	4.16	371.91	33.20				
Other Tackle		38.83	3.15	65.55	2.55				
Gear		7.77	0.90	127.37	10.17				
Camping Equipment		3.67	0.87	182.55	20.57				
Binoculars		1.17	0.20	91.33	17.77				
Clothing		3.74	0.59	106.15	7.73				
Magazines		2.06	0.25	43.77	4.42				
Club Dues		1.46	0.26	88.72	15.45				
License Fees		20.16	1.10	38.25	0.82				
Boat Accessories		169.79	37.50	1,294.96	275.84				
Boat Purchase		455.55	53.14	5,365.14	210.76				
Boat Maintenance		111.08	8.95	820.18	25.83				
Fishing Vehicle		359.28	34.50	9,213.62	736.00				
Fishing Vehicle Maintenance		85.04	13.13	1,071.80	43.80				
Vacation Home		4.33	2.45	958.94	414.53				
Vacation Home Maintenance		2.64	1.35	2.64	1.35				
Total		1,321.54	107.99	19,863.13	917.52				

\* indicates standard error based on < 10 observations. If the cell is missing (.) and has an asterisk, only one observation was available.



# Southern California

Table 4. Southern California Total Expenditures by Resident Status, 2000 (in thousands of dollars).

SOUTHERN CALIFORNIA		Total	Upper Bound	Lower Bound	Total	Upper Bound	Lower Bound
Trip Expenditures	Mode	Residents			Non-Residents		
Private Transportation	Party/Charter	8,217	9,068	7,369	7,589	8,828	6,371
	Private/Rental	11,814	14,803	9,328	5,181	7,038	3,324
	Shore	6,754	8,631	4,877	2,321	3,270	1,571
Food	Party/Charter	10,605	11,750	9,459	4,482	5,238	3,565
	Private/Rental	12,712	15,499	9,828	1,213	1,888	0
	Shore	5,789	7,382	4,218	886	1,049	523
Lodging	Party/Charter	985	1,499	491	6,887	9,576	5,217
	Private/Rental	875	1,599	160	1,614	2,791	498
	Shore	2,873	4,148	0	1,301	2,146	0
Public Transportation	Party/Charter	429	852	0	29,405	37,238	21,572
	Private/Rental	48	90	0	4,251	7,668	885
	Shore	182	282	0	504	1,295	0
Boat Fuel	Private/Rental	21,790	26,483	18,948	1,520	2,188	0
Party/Charter Fees	Party/Charter	46,587	52,021	41,152	4,332	5,377	3,287
Access/Boat Launching	Party/Charter	806	1,018	583	342	818	0
	Private/Rental	2,595	3,175	2,016	164	263	0
	Shore	889	1,295	702	186	388	0
Equipment Rental	Party/Charter	1,525	1,943	0	4,060	5,904	2,785
	Private/Rental	1,213	1,593	0	584	831	127
	Shore	190	278	21	30	58	1
Bait & Ice	Party/Charter	225	284	185	268	380	166
	Private/Rental	11,570	14,078	9,062	782	1,089	466
	Shore	2,750	4,028	1,471	195	302	88
Total	Party/Charter	69,369	71,056	63,703	57,294	65,605	48,982
	Private/Rental	62,627	69,286	55,987	15,241	19,401	11,081
	Shore	19,446	22,445	16,447	5,203	6,759	3,246
Annual Expenditures		Residents			Non-Residents		
Rods and Reels		60,366	72,143	48,588			
Other Tackle		42,802	51,266	33,897			
Gear		8,531	10,582	6,499			
Camping Equipment		4,000	5,981	2,100			
Binoculars		1,281	1,744	817			
Clothing		4,105	5,488	2,743			
Magazines		2,257	2,868	1,681			
Club Dues		1,887	2,188	1,006			
License Fees		22,124	25,804	18,444			
Boat Accessories		180,526	254,226	98,827			
Boat Purchase		525,965	658,229	398,700			
Boat Maintenance		125,489	150,467	100,492			
Fishing Vehicle		405,881	594,451	217,311			
Fishing Vehicle Maintenance		96,070	126,785	66,368			
Vacation Home		4,881	10,194	0			
Vacation Home Maintenance		2,878	5,895	57			
All Sub-Totals		1,640,143	1,889,086	1,381,171	77,737	87,162	68,313
State Total		1,717,880	1,988,971	1,468,730			



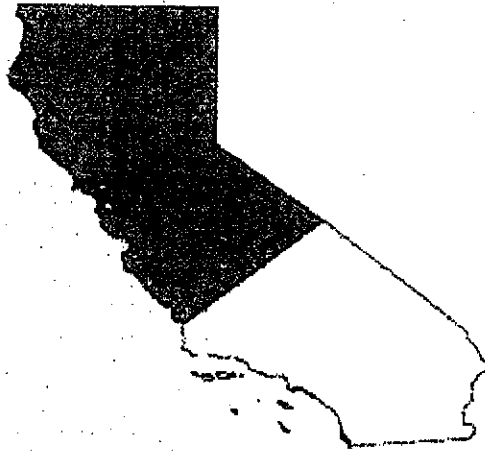
## Northern California

Table 5. Northern California Average Expenditures by Mode and Resident Status, 2000.

NORTHERN CALIFORNIA		Residents				Non-Residents			
Trip Expenditures	Mode	All (\$)		Spenders (\$)		All (\$)		Spenders (\$)	
		Mean	Standard Error	Mean	Standard Error	Mean	Standard Error	Mean	Standard Error
Private Transportation	Party/Charter	20.45	1.03	20.45	1.03	72.00	5.87	72.00	5.87
	Private/Rental	13.53	0.39	13.53	0.39	64.24	5.19	64.24	5.19
	Shore	18.50	1.07	18.50	1.07	66.19	13.05	66.19	13.05
Food	Party/Charter	16.49	1.31	18.30	1.39	22.66	2.90	23.63	2.69
	Private/Rental	8.95	0.36	10.80	0.43	23.38	3.09	25.32	3.19
	Shore	13.00	1.10	17.42	1.35	29.27	7.59	29.27	7.59
Lodging	Party/Charter	8.58	1.86	89.63	10.47	45.04	9.24	71.65	11.37
	Private/Rental	3.65	0.47	31.93	3.26	10.21	3.04	32.43	7.24
	Shore	9.90	2.00	37.57	6.73	30.41	14.88	43.93	20.14
Public Transportation	Party/Charter	1.83	1.07	37.40	19.46	114.96	37.24	365.84	76.33
	Private/Rental	0.13	0.07	19.41	7.96	2.97	2.33	78.75	38.75
	Shore	0.77	0.24	15.96	3.04	36.92	25.40	240.00	40.00
Boat Fuel	Private/Rental	9.71	0.30	10.49	0.31	11.94	1.59	13.50	1.66
Party/Charter Fees	Party/Charter	56.11	2.05	58.42	1.97	51.62	5.73	51.82	5.73
	Private/Rental	0.64	0.19	4.50	0.78	1.24	0.74	10.86	4.42
	Shore	1.22	0.10	4.22	0.28	3.02	0.74	7.81	1.35
Equipment Rental	Party/Charter	0.96	0.21	4.32	0.81	0.15		1.90	
	Private/Rental	5.13	1.22	36.07	5.99	18.76	13.33	82.06	55.09
	Shore	0.67	0.16	22.90	3.73	1.37	1.05	36.42	15.58
Bait & Ice	Party/Charter	1.45	0.39	15.17	3.09	4.62	3.32	30.00	10.00
	Private/Rental	2.60	0.51	10.19	1.58	1.22	0.42	4.75	0.90
	Shore	5.03	0.16	6.94	0.16	8.33	1.16	9.20	1.21
Total	Party/Charter	3.89	0.23	5.02	0.25	6.24	1.69	7.36	1.80
	Private/Rental	112.03	3.67	236.89	14.86	327.73	41.55	367.18	62.52
	Shore	43.90	0.82	121.22	9.42	125.47	7.52	226.73	18.29
Annual Expenditures		All (\$)		Spenders (\$)		All (\$)		Spenders (\$)	
Rods and Reels		69.66	6.17	276.24	17.81				
Other Tackle		49.26	3.55	109.45	23.41				
Gear		14.49	1.62	96.13	1.29				
Camping Equipment		7.89	2.41	186.55	26.74				
Binoculars		1.76	0.41	95.55	25.17				
Clothing		13.34	2.94	144.82	17.92				
Magazines		2.09	0.37	41.63	7.83				
Club Dues		2.08	0.59	79.78	14.32				
Licence Fees		33.96	1.23	43.16	1.50				
Boat Accessories		125.52	27.04	898.26	136.51				
Boat Purchase		407.72	66.97	4,338.97	302.76				
Boat Maintenance		105.44	11.80	456.20	18.23				
Fishing Vehicle		582.53	270.32	8,984.09	2,784.03				
Fishing Vehicle Maintenance		148.72	32.19	1,097.98	37.37				
Vacation Home		16.53	14.19	8,775.90	15,749.04				
Vacation Home Maintenance		5.98	2.75	5.98	2.75				
Total		1,587.84	282.39	25,624.71	15,006.82				

\* indicates standard error based on <10 observations. If the cell is missing (.) and has an asterisk, only one observation was available.





# Northern California

**Table 6. Northern California Total Expenditures by Resident Status, 2000 (in thousands of dollars).**

NORTHERN CALIFORNIA		Total	Upper Bound	Lower Bound	Total	Upper Bound	Lower Bound
Trip Expenditure	Mode	Residents			Non-Residents		
Private Transportation	Party/Charter	4,066	4,669	3,441	2,539	3,579	2,098
	Private/Rental	13,044	15,448	10,643	1,909	2,571	1,407
	Shore	16,879	20,306	13,453	1,456	2,109	802
Food	Party/Charter	3,869	3,901	2,636	902	1,182	611
	Private/Rental	6,894	10,307	6,901	724	982	468
	Shore	11,866	14,479	9,253	844	970	317
Lodging	Party/Charter	1,701	2,465	946	1,776	2,575	976
	Private/Rental	3,325	4,596	2,481	315	515	117
	Shore	9,033	12,052	6,015	889	1,184	154
Public Transportation	Party/Charter	363	781	0	4,533	7,645	1,522
	Private/Rental	122	252	0	82	234	0
	Shore	695	1,031	365	812	1,644	0
Boat Fuel	Private/Rental	9,359	11,094	7,693	370	502	238
Party/Charter Fees	Party/Charter	11,126	12,637	9,615	2,096	2,646	1,486
Access/Boat Launching	Party/Charter	166	242	91	48	107	0
	Private/Rental	1,176	1,455	898	93	143	43
	Shore	877	1,185	570	3	8	0
Equipment Rental	Party/Charter	1,017	1,504	830	740	1,776	0
	Private/Rental	649	965	327	43	107	0
	Shore	1,427	1,878	777	101	210	0
Bait & Ice	Party/Charter	516	721	308	48	82	14
	Private/Rental	5,816	6,879	4,763	258	352	164
	Shore	3,546	4,272	2,824	137	208	66
<b>Total</b>	Party/Charter	22,212	23,555	20,190	12,822	16,356	9,468
	Private/Rental	42,322	46,071	32,573	3,684	4,590	3,179
	Shore	44,229	49,588	34,971	3,821	5,049	2,563
<b>Annual Expenditures</b>		<b>Residents</b>			<b>Non-Residents</b>		
Rods and Reels		27,623	32,622	21,424			
Other Tackle		19,111	22,572	15,949			
Gear		5,621	7,003	4,237			
Camping Equipment		3,059	4,918	1,200			
Binoculars		683	1,002	364			
Clothing		5,174	7,480	2,868			
Magazines		811	1,108	514			
Club Dues		507	1,261	354			
Licenses Fees		13,172	14,937	11,407			
Boat Accessories		50,137	71,438	28,857			
Boat Purchase		182,655	216,659	108,752			
Boat Maintenance		42,116	62,270	31,963			
Fishing Vehicle		232,680	439,594	25,785			
Fishing Vehicle Maintenance		69,801	95,182	34,441			
Vacation Home		5,804	17,400	0			
Vacation Home Maintenance		2,359	4,449	231			
<b>All Sub-Totals</b>		<b>740,758</b>	<b>987,902</b>	<b>523,608</b>	<b>20,628</b>	<b>24,342</b>	<b>16,914</b>
<b>State Total</b>		<b>761,395</b>	<b>978,561</b>	<b>544,204</b>			

California (All)

---

