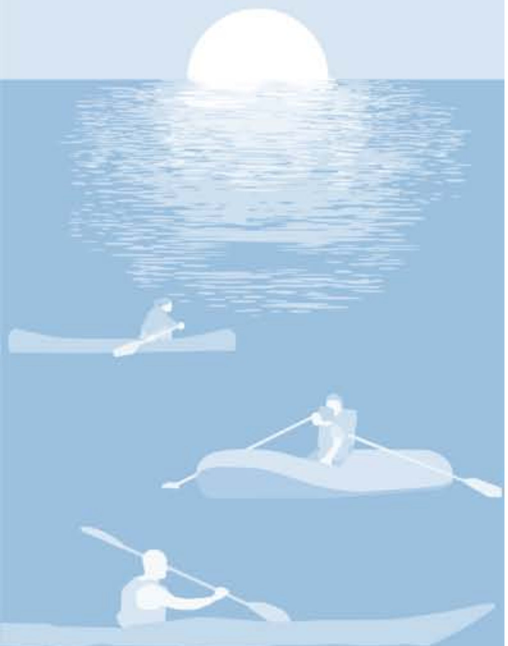
Appendix F

Summary of Existing Studies on Non-Motorized Boating



F. Summary of Existing Studies on Non-Motorized Boating

This appendix summarizes existing literature on non-motorized boating participation. There have been a number of survey efforts directed at some aspects of non-motorized boating. None of these studies have addressed the full spectrum of non-motorized boats, and most have been national in scope, although some studies provided results by state or region. Most prior studies have identified participation in non-motorized boating activities, defined as participating in an activity at least once during the year in question. Participation is not the same as boat ownership, and includes those that own non-motorized boats, as well as those that rented, attended a class, or went on a guided trip. In general, participation data should be higher than ownership data because of these other avenues to participate in non-motorized boating.

In this section of the appendix we summarize seven (7) studies of non-motorized boating participation or sales.[a] First, we briefly describe the methodology and approach utilized for each study. Second, for each of the non-motorized boating categories that are described in the data, we provide a brief comparison of the results of those studies.

This appendix is organized as follows:

A. Non-Motorized Boating Existing Studies
B. Non-Motorized Boating Existing Studies Participation Results
C. Non-Motorized Boating Existing Studies General Demographic Characteristics

A. Non-Motorized Boating Existing Studies

It is important to understand the limitations of prior survey data studies. For many of the participation studies, we cannot actually determine that participation was for non-motorized boating. This was particularly true of the “canoe” and “rafting/inflatables” categories, which, although often non-motorized, may in some instances be used with a motor. In some cases, such as the NSRE’s “rafting/floating” category, the study might have included some activities that would not be defined as non-motorized boating in our current study definition (such as floating in an inner tube). However, these studies also likely excluded some non-motorized boating activities that would be defined as non-motorized boating in our current study definition (such as using an inflatable boat for a tender, for scuba diving, or for fishing). Some data, such as the Outdoor Industry Foundation studies, are defined specifically as “human-powered”, in which case they should not include any motorized use.

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[a] References for these studies are provided one time, when the study is introduced. The later discussions identify the data sources, but they are not referenced. Please refer to the initial endnote for the exact reference document information.

Several studies provided statistics for participation in sailing; however, most did not distinguish the size of boat, and even the *State of the Industry* study of sailing only specified sailboat production at the 11 foot, or shorter, length. While we still summarize these sailing data, it is important to note that participation rates for sailboats 11 feet, or shorter, are likely much higher than for sailing with boats 8 feet in length, or shorter.

All of these studies of non-motorized boating participation faced the same statistical issues as the current study. Because only a small fraction of the population participates in non-motorized boating, the estimated participation rates were subject to high relative margins of error, even when the sample size was large. When error rates were provided, none of these studies specified whether error rates (margins of error) were absolute or relative; however based on sample sizes, they appear to be absolute margins of error.

Finally, none of these studies are directly comparable to this study of non-motorized boating in California. However, we summarize them in this Appendix because they represent the majority of national research on this topic.

1. National Survey on Recreation and the Environment (NSRE)[1]

The NSRE was conducted by the United States Forest Service (USFS), in cooperation with several other agencies and two universities. This was a large-scale national survey that has been conducted eight times, with the first survey conducted in 1960, and the most recent survey conducted from September 1999 through 2003. The survey examined a wide range of outdoor activities taking place on both public and private lands. While the methodology of the survey has changed somewhat over the years, and activities have been added over time, the basic survey approach has remained fairly stable.

The NSRE was a national telephone survey of the general public (age 16 and over) to determine participation in 80 different outdoor recreation activities. The most recent published data set (1999 to 2003) included interviews with more than 85,000 individuals. The NSRE data reflected an extraordinarily large number of surveys, and thus a high level of statistical confidence in its results.

The NSRE survey was conducted in batches, or versions, of approximately 5,000 completed surveys. Each version included the core set of participation and demographic questions, as well as a set of specific topic questions unique to that version. Between 1999 and 2001, the USFS completed nine versions, for a total of 42,868 interviews. By December 2003, the NSRE had completed fifteen versions, resulting in over 230,000 hours of interviewing and over 85,000 completed surveys.

NSRE data across versions were aggregated and tabulated nationally, and by USFS region, for males and females, three age groups, and five ethnicity categories. Confidence intervals for the data varied depending on the particular strata of information. However, combined (national) data were generally accurate within 2 to 3 percent, with a 95 percent confidence interval. The data were weighted to (1) correct for overrepresentation or underrepresentation of any particular demographic group; and (2) adjust for avidity, listing bias, and refusals.

The most recent published NSRE results included six non-motorized boating categories: rafting, sailing (all sailing), kayaking, canoeing, rowing, and sailboarding. Earlier versions of the NSRE included only some of these categories. For example, sailboarding has only been included since 1994 (two survey rounds), and in the first survey, canoeing and kayaking were combined into one category.

Table F.1, on the next page, provides national NSRE participation rates for six non-motorized boating activities. The most recent published national-level data were from 57,868 telephone

Table F.1
NSRE Participation Data for Six Non-Motorized Boating Activities

Non-Motorized Boat Type	NSRE National Data • 1999-2003 Percent of Population Participating	NSRE Region 5 Data • 2000-2004 Percent of Population Participating
1. Rafting/Floating	9.7%	7.8%
2. Canoeing	9.6%	5.5%
3. Kayaking	3.7%	6.0%
4. Sailing (all sailboats)	5.2%	7.3%
5. Rowing	4.3%	3.6%
6. Sailboarding	0.8%	1.1%

surveys conducted between July 1999, and July 2002. The Region 5 data were drawn from a data set of over 81,000 national surveys (2000 through 2004). Region 5 consisted of only California and Hawaii, and thus essentially reflected California's population characteristics (97 percent of Region 5 population is in California). The rafting/floating category had the highest participation rates of the six non-motorized boating activities at the national level, and within Region 5.

2. Outdoor Industry Foundation (OIF)[2]

The Outdoor Industry Foundation (OIF) is a non-profit research arm of an industry trade group, the Outdoor Industry Association. The OIF conducts an annual survey of participation in "human powered outdoor activities". The OIF began tracking ten activities in 1998, but have added additional activities, and now annually track 22 activities. The initial surveys included canoeing and rafting. Kayaking, including a breakdown for recreation/sit-on-top, touring/sea, and whitewater, was added in 2001.

The survey was part of an ongoing study of Americans' leisure time, Leisure TRAK®. This was a telephone survey, with "scientific sampling" and random digit dialing. The sampling used a disproportionate stratified random sample by census region and gender to ensure accurate representation of subgroups. Interviews were conducted with one member of the household age 16, or over. A total of 4,000 interviews were conducted each year, with 1,000 surveys conducted during 14 day periods in March, June, September, and December.

Overall participation rates were accurate at the 95 percent confidence level within 1.6 percent. Any data at the subgroup level has a lower level of statistical accuracy, due to the smaller representation. For the 2005 study, participation rates were extrapolated to the U.S. population based on U.S. Census Bureau year-over-year estimates for individuals 16 and over, but excluding those in institutions, college dormitories, and other group quarters.

Results were provided by region, as well as nationally. California is part of the West region, which also includes Washington, Oregon, Idaho, Montana, Wyoming, Colorado, New Mexico, Utah, Nevada, Arizona, Alaska, and Hawaii. In 2001, the OIA provided state-by-state participation data.

The most recent OIF data, summarized in **Table F.2,** on the next page, was for 2005 participation rates. OIF provided some data at the regional level. At the national level, OIF data showed that rafting had the third highest participation, behind canoeing and kayaking. However, in the West, rafting and kayaking had equally high participation rates, with both greater than the canoeing participation rate.

Table F.2
OIF Participation Data for Three Non-Motorized Boating Activities

Non-Motorized Boat Type	OIF National Data • 2005 Percent of Population Participating	OIF West Data • 2005 Percent of Population Participating
1. Rafting	4.7%	6.0%
2. Canoeing	9.3%	5.0%
3. Kayaking (all)	5.6%	6.0%
4. Kayaking (recreational)	4.0%	3.0%
5. Kayaking (sea/touring)	2.5%	3.0%
6. Kayaking (whitewater)	1.0%	NA

3. The Recreation Roundtable Survey[3]

The Recreation Roundtable was sponsored by the American Recreation Coalition, a non-profit organization that promotes partnerships in outdoor recreation. RoperASW has conducted a survey of attitudes and participation in outdoor recreation for the Recreation Roundtable, starting in 1994. The most recent survey, conducted in 2003, consisted of in-person interviews with 2,001 individuals, 18 and older. The survey tracked three non-motorized boating activities: canoeing/ kayaking, rowing, and sailing (again, all sailing combined). The survey did not provide any demographic breakdowns; however, the data showed historical trends for these three activities.

4. The National Recreational Boating Survey (NRBS)[4]

The NRBS was conducted for the United States Coast Guard (USCG) by Strategic Research Group in 2002. A total of 25,547 mail and telephone surveys were obtained between September 2001 and September 2002. The sample was stratified to obtain 500 eligible boaters within each state, 250 registered boaters, and 250 non-registered boaters. Registered boaters were surveyed by mail, with a 49 percent response rate. Non-registered boaters were surveyed by telephone, using random digit dialing procedures to identify eligible households. The telephone survey response rate was 61 percent. Sample data were weighted to reflect the population of each state. A total of 495 surveys were completed in California. Results were compiled nationally and by state.

The survey covered all types of boating activities, including motorized and non-motorized boats. Five categories of generally non-motorized boats were included in the study: canoes, kayaks, rowboats, inflatables, and sail-only sailboats (all sizes). This study did not provide participation rates; however it did examine characteristics of various types of boaters.

5. American Sports Data SUPERSTUDY® of Sports Participation[5]

American Sports Data, Inc. (ASD) is a sports research company that has conducted annual surveys of sports participation since 1987. ASD currently tracks 103 sports and activities. NewPoint Group purchased ASD data for this report. Each January, ASD conducts a mailed survey of 25,000 households from a consumer mail panel. One individual over the age of six was pre-selected to complete the survey in each household (with parental assistance, if necessary).

The survey consisted of a four-page booklet of questions about sports participation, attitudes, and demographics for the previous calendar year. A total of 14,076 usable questionnaires were returned for 2005. The ASD data summarized in this Appendix

Table F.3
ASD Participation Data for Five Non-Motorized Boating Activities

Non-Motorized Boat Type	ASD National Data • 2005 Percent of Population Participating	ASD West Data • 2005 Percent of Population Participating
1. Rafting	1.7%	2.6%
2. Canoeing	4.4%	3.1%
3. Kayaking	2.6%	2.8%
4. Sailing (all sailboats)	1.8%	1.7%
5. Sailboarding	0.2%	0.2%

is for calendar year 2005. The sample was balanced to reflect the non-institutionalized population of six years of age, or more, within the 48 continental United States. Weighting was based on the most recent Census update for five categories: age within gender, race, geographic region, and household income.

Based on the 2005 survey response rate and population, each usable survey represented 18,835 individuals. Data were extrapolated to the population for the nearest 1,000 people, representing the estimated number of non-institutionalized persons over six years of age living in the continental United States in 2005. Sampling errors were dependent on the number of respondents in any particular category. For those activities with a large number of respondents, for example running, error rates at the 95 percent confidence level were relatively low (less than 5 percent). In part because of the lower age group, ASD participation rates were, in most cases, lower than those of the other studies.

ASD collected data for five non-motorized boating activities: canoeing, kayaking, rafting, sailing (all), and sailboarding. Detailed demographic data were available at the national level; however only overall participation rates were available at the State level.

Table F.3, above, provides ASD participation rates for five non-motorized boating activities in 2005 at the national level and for the West. ASD used the same western states in their definition of West as OIF. ASD national and West results showed rafting behind canoeing and kayaking participation rates. However in the West, the participation rates were all essentially similar, in the three (3) percent range.

6. National Marine Manufacturers Association (NMMA)[6]

NMMA annually produces a *Boating Statistical Abstract.* The *Abstract* is a compendium of recreational boating statistics for motorized and non-motorized boats. NMMA obtains data from a number of other organizations, such as the U.S. Coast Guard, and also conducts surveys of individuals and the boating industry. Non-motorized boats that are included in the *Abstract* are canoes, kayaks, and inflatables. The *Abstract* also includes a sailing category (using data from the Sailing Industry Statistics, below), with the smallest size breakdown for 11 feet, and under, in length.

While the *Abstract* includes overall recreational boating participation data, the primary focus is sales, thus, data in the NMMA report are quite different from the first five reports summarized in this section. The sales data for the paddle sports market were based on NMMA surveys that covered 70 percent of the market.

7. Sailing Industry Statistics[7]

The Sailing Company annually compiles statistics for the sailing industry. The survey includes production data from 137 out of 153 identified

North American sailboat builders, a 90 percent response rate. Data is broken down for sailboats by size, with the smallest increment being 11 feet, and under. Of the approximately 16,000 sailboats built by survey respondents in 2005, 28 percent were 11 feet, and under, in length. This was the second largest size category, with boats 12 feet to 19 feet making up just over one-half of all sailboats produced.

* * * * *

California has different non-motorized boating preferences than the nation overall. Compared to national figures, Californians are less likely to canoe, a little less likely to row, and will raft at about the same rate as the national average. Californians are more likely to participate in kayaking and sailing, and a little more likely to participate in sailboarding, than the rest of the country.

Table F.4, on the next page, provides the national participation rate ranges for six categories of non- motorized boating from existing studies. The overall non-motorized boating participation rate for Californians age 12, and older, from this study, 8.25 percent, is provided for comparison.

Table F.4 also provides the conservative estimates of boat type participation for regularly used boats from this study. These estimates are difficult to compare to the participation studies because they do not take into account that individuals may participate in more than one boat type. Thus, the current study results represent minimum participation rate figures for each boat type.

B. Non-Motorized Boating Literature Existing Studies Participation Results

This subsection briefly summarizes primarily national participation rates, and sales data for six major types of non-motorized boating: (1) canoeing; (2) kayaking; (3) rafting, or floating/ rafting, or inflatables; (4) rowing; (5) sailing; and (6) sailboarding/windsurfing.

1. Canoeing

Canoeing is the most traditional non-motorized boating activity, and has been tracked for the longest period of time. There were several sources of data on canoe participation and demographics, although some combined canoeing with kayaking, or other paddle sports. Canoe participation data was provided in NSRE, OIF, ASD, and the Recreation Roundtable. Canoe participation rates were generally higher than for other non-motorized boating activities.

While canoeing is the most popular non-motorized boat activity nationally, it is not as popular in California as the rest of the country. All data sources indicate that canoe participation is lower in California and/or the Western United States. Canoeing is most popular in the Midwest and Northeast.

The existing literature national participation rate ranges for canoeing were between 2.0 percent and 9.7 percent of the population. The average national canoeist participated between 4 and 8 days per year.

The NMMA tracks national canoe sales through a monthly survey of wholesalers (currently covering about 70 percent of the paddle sports market). Among the nine boat types monitored, including motorized and non-motorized boats, canoes were the fourth highest selling boats, following kayaks, outboard boats, and personal watercraft, and just slightly higher than sterndrive boats.

In 2005, there were 77,300 canoes sold in the United States, one of the lowest sales years on record, and significantly lower than 2004, when 93,900 canoes were sold. The highest canoe sales year on record was 1981, with sales of 126,000.

NMMA canoe sales in the first three quarters of 2006 were up 29 percent from the same time period in 2005, at 45,251 units.[8] We cannot determine California sales from these data. Canoe sales in a given year do not provide insight into canoe use, as there are a large number of canoes that are many years old, but still being used.

Table F.4
Non-Motorized Boating Participation Rates[a] from Existing Studies (Various years)

Activity	Current Study Results Rate	Literature Low Rate	Literature High Rate
All Non-Motorized Boating	8.25%		
1. Rafting[b]	2.7%	1.7%	9.7%
2. Kayaking (all)[c]	2.6%	2.6%	6.0%
a. Recreational		3.5%	4.0%
b. Sea/Touring		2.5%	4.5%
c. Whitewater		1.0%	1.2%
3. Canoeing	0.7%	2.0%	9.7%
4. Rowing	0.4%	3.0%	4.3%
5. Sailing[d]	0.2%	0.1%	0.4%
6. Sailboarding	0.2%	0.2%	1.1%

[a] *Percent of study populations for literature rates, most based on age 16 and older. Used percent of California 2006 population age 12, and over, for current NMB study (surveys did not identify age of household participants)*

[b] *Rafting in some literature studies also includes "floating".*

[c] *Kayak subgroups do not add up to total, as some individuals participate in more than one kayak type.*

[d] *To extrapolate downwards from larger sailboats, adjusted literature results based on an assumption that 5 percent of sailing is in boats 8 feet, and under.*

2. Kayaking

Kayaking has evolved from a technical sport for experts to one that also provides an easy-to-learn recreational activity for novice boaters. Data on national kayaking participation was not tracked until the 1990s, although the 1982/1983 NSRE survey combined canoeing and kayaking into one category. By the 1994/1995 NSRE survey, the two activities were separated. ASD began tracking kayak participation in 1998, and OIF began tracking kayaking, divided into three major categories, in 2001. Kayaking, unlike canoeing, appears to be more popular in California than the nation overall.

The existing literature national participation range for kayaking was between 2.6 percent and 6.0 percent of the population. The average kayaker participated in the activity between 6 and 13 days per year.

National kayak participation rates among the general public increased in 1999/2001, with a growth rate of 186 percent from the previous NSRE survey, the highest growth rate of all activities measured. The national participation rate in 1999/2001 was 3.5 percent, or 7.4 million participants. Participation rates were higher in the West, with 5.3 percent participation in the Pacific Coast region, and 4.4 percent participation in California.

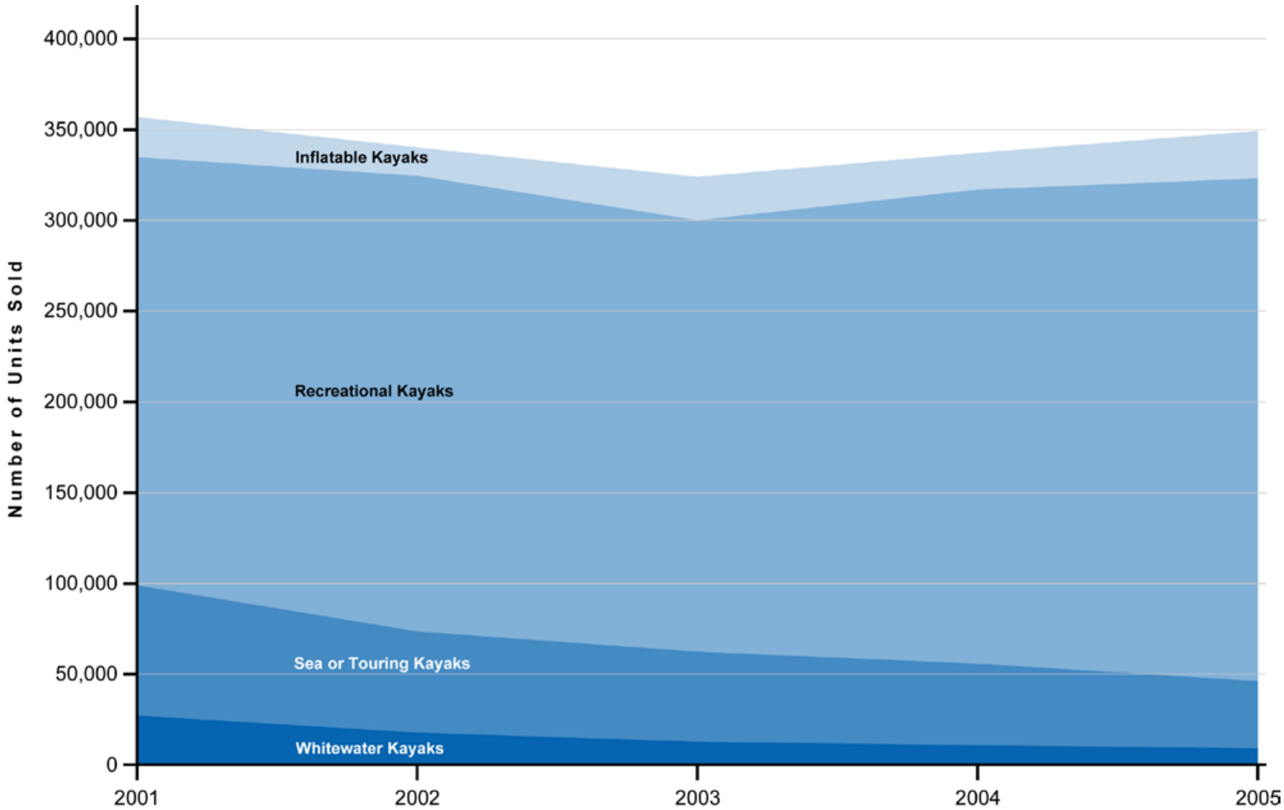
The Outdoor Industry Foundation was the only participation study to provide national kayaking data for different types of kayaking: recreation/sit-on-top, touring/sea, and whitewater.

OIF national participation rates in all types of kayaking increased from 2004 to 2005, to 5.6 percent of the population, or 12.6 million participants.

Of the three types of kayaking, recreational/sit-on-top was the most popular. This form of kayaking is more attractive to beginners, as the boats are easy to maneuver, and relatively inexpensive.

In 2005, OIF estimated that 4.0 percent of the national population participated in recreational kayaking, or 9.0 million people. Participation rates were somewhat lower in the Western United States, as compared to the rest of the country.

Exhibit F.1
NMMA National Kayak Sales, by Type, 2001 to 2005



Source: NMMA, 2006. From Table 13.3, "Estimates of Kayak Retail Sales," p. 109.

Sea kayaking or touring was the second most popular kayaking activity. In 2005, OIF estimated that 2.5 percent of the national population participated in sea kayaking, a rate that had been stable since 2003.

Whitewater kayaking had the lowest national participation rates of the three kayaking activities in the OIF study, at 1.0 percent in 2005, or 2.2 million people. Whitewater kayak participation rates were highest in the South Central and West regions, both known for good whitewater rivers.

The NMMA did not begin tracking kayak sales until 2001, when kayaks were already the top selling boat in the survey, at 357,100 sold. This figure was well above the next highest selling boat, outboard motor boats, at 217,800 boats sold. High sales of recreational kayaks have driven overall kayak sales, with over 277,000 sit-in and sit-on recreational kayaks sold in 2005, up from 236,000 sold in 2001.

Exhibit F.1, above, illustrates kayak sales, by type, between 2001 and 2005. While sales of the more technical specialty kayaks, such as whitewater and sea/touring kayaks have declined since 2001, recreational kayaks have seen consistent growth. Kayak sales continued to increase in 2006, with NMMA 3rd quarter 2006 kayak sales up 12.6 percent compared to the same time in 2005, at 263,679 units.[9]

3. Rafting, or Floating/Rafting, or Inflatables

The rafting category in existing studies is less clearly defined than canoeing or kayaking, as there are many types of rafts or inflatable boats. The NSRE combined rafting and floating in one category. This category may include rafting in an inflatable boat with a motor, and it may also include floating in an inner tube (tubing), which is not classified as a non-motorized boat for this study. Thus, these studies may overstate some estimates of rafting, floating/rafting, or inflatables participation. Rafting participation rates were not measured until the 1994/1995 NSRE study. The OIF began measuring rafting participation (for them defined as “human-powered”) in 1998, as did ASD.

Rafting appears to be about as popular in California as the nation overall, although one study found rafting participation in California slightly above the national rates, and another found California participation slightly below national rates. Rafting participation rates in Western states are often higher, but are typically driven by higher participation in the Mountain States and Northwest, not California.

The national participation rate for rafting in existing studies was between 1.7 percent and 9.7 percent, one of the wider ranges.

The Outdoor Industry Foundation data reflected non-motorized rafting only. In 2005, OIF found a 4.7 percent national participation rate, or 10.6 million rafters nationally.

NMMA tracked inflatable sales in the 1980s and early 1990s, and then not again until 2003. Over the last three years, about 30,000 inflatable boats were sold each year in the United States. Inflatable sales were well below the high-selling canoes and kayaks, but still higher than inboard boats, sailboats, and jet boats. NMMA inflatable sales in the first three quarters of 2006 were down 16.6 percent compared to the same time period in 2005, at only 8,117 units.[10]

4. Rowing

Only NSRE, USCG, and the Recreation Roundtable provided data on rowing as a subcategory. There was no definition of rowing, so it likely included any type of rowing activity – rowing sculls and shells, row boats, tenders, dories, driftboats, and rowing boats that are sometimes used with a motor. Rowing participation rates in California appeared to be slightly lower than national rowing participation rates.

The national participation rate for rowing was between 3.0 percent and 4.3 percent, a relatively small range, which is perhaps a result of the limited data, rather than the accuracy of the data.

5. Sailing

There were no equivalent data for sailing, as defined by this study. Sailboat participation studies did not provide any breakdown by the size of sailboat, and most did not distinguish whether or not the sailboat had an auxiliary motor. Many studies examined sailing participation overall, including NSRE (dating back to 1960), ASD, USCG, and the Recreation Roundtable. We briefly summarize these studies below, and made an assumption that 5 percent of sailing participation was in sailboats 8 feet long, and under. This assumption was based on estimates of the total number of small sailboats provided by small sailboat organizations in California.

The participation rate for small sailboat sailing (based on our 5 percent assumption) was between 0.1 percent and 0.4 percent.

There are three primary sailboat brands that were within the scope of this non-motorized boating study, El Toros, Optimists, and Sabots. These small sailboats are 8 feet, or less, in length, and are popular for both teaching sailing, and racing.

There were an estimated 500 to 1,000 El Toro sailboats in California, with about 300 registered for racing.[11] There were an estimated 500 Optimist sailboats in California. Many of these boats have been purchased by yacht clubs or learn-to-sail programs over the last five years.[12] There have been a total of 10,000 Sabots built in the United States over the last 50-plus years. Many of these boats were no longer active, and/or were not in California. There were likely at least 1,000 active Sabots in California, with about 900 registered for racing, and 500 actively racing.[13] There were likely a large number of old, unused, Sabots scattered throughout Southern California in garages and backyards. Many of these boats were made by the owner, so that even if sales data were available at the 8-foot-length-and-under level, it would not include the universe of homemade boats. Based on these estimates, there were about 2,500 small sailboats currently active in California.

NMMA provided data on sailboat sales for boats under 11 feet in length (in part through The Sailing Company) from 2000 through 2005. The highest recorded sales were for 2000, at 8,123 boats. Between 2003 and 2005, sales were approximately 4,000. Sales of boats 8 feet, and shorter, were likely a small subset of this amount. For example, based on sail numbers, there have only been 10,000 Naples Sabots made since the mid-1940s.[14]

6. Sailboarding/Windsurfing

Participation data for sailboarding (also called windsurfing) was provided in only two sources: NSRE and ASD. Sailboarding was more popular in the late 1980s and early 1990s, and participation appears to have fallen off since that time. Sailboarding participation rates in California appear to be slightly higher than national rates.

Sailboarding participation makes up a relatively small percentage of the population. The national participation rate range for sailboarding was between 0.2 percent and 1.1 percent.

NMMA tracked sailboard sales between 1980 and 1990, when sales were at 42,000 units. The highest year on record was 1987, at 70,000 units. Sales declined each of the following years that were measured.

C. Non-Motorized Boating Existing Studies General Demographic Characteristics

Beginning with the NSRE in 1960, studies of outdoor recreation participation have identified characteristics of non-motorized boaters, and outdoor enthusiasts in general, that have remained consistent over time. Participation in outdoor recreation activities is positively correlated with income and education. The more education and/or income, the more likely an individual is to participate in these activities. The income correlation sometimes breaks down at the highest levels, with participation rates among the top income category lower than the next-to-top income category.

The demographic results of these other studies are consistent with this report. Over 82 percent of boat-owning respondents in the statewide random survey were Caucasian, compared to 43 percent of the State population.[15] Statewide random survey respondents were also more highly educated. Twice as many respondents had college degrees, and three times as many respondents had advanced degrees, compared to the State population. In the mid-income category of $50,000 to $100,000 per household, the percentage of respondents was about the same as the State population. However, there were fewer respondents in the lower income categories and more in the higher income categories, than the State population.

In the current study of non-motorized boating, and all existing studies, participation rates for all non-motorized boat types were highest for Caucasians. In some cases participation rates for Hispanics and/or Asians were increasing, but in all cases were much lower than expected based on population. Participation rates for African Americans were low. Participation among males was slightly higher than females for most activities, although typically there were not significant differences between genders.

Table F.5
Typical Demographic Characteristics by Non-Motorized Boat Types

Boat Type	Gender	Age	Ethnicity	Household Income	Education	Experience
1. Canoes	Slightly more males	More in middle age groups, also younger	Primarily Caucasian, with increasing Hispanic	High	Mostly college graduates or full time students	Many less than 3 years or 10 or more years
2. Kayaks	More males	Younger, with some in older age groups	Primarily Caucasian, with increasing Hispanic and Asian for recreational kayaks	Higher	Mostly college graduates or advanced degrees	Many less than 3 years, a few 10 or more years
3. Rafts	About even	Younger, through 30s	Primarily Caucasian, some Hispanic	High	Mostly college graduates or some college	Many less than 3 years, or 10 or more years
4. Row boats	Slightly more females	Even among age groups (i.e. more older boaters)	Primarily Caucasian	High	Mostly college graduates or some college	Unknown
5. Sailboats	About even	More older	Primarily Caucasian	Higher	Mostly college graduates, advanced degrees, or full time students	Many less than 3 years, or 10 or more years
6. Sailboards	Even or more males	Younger, with some in older age groups	Primarily Caucasian	High	Mostly college graduates or some college	Many less than 1 year, or 10 or more years

Table F.5, above, provides a summary of typical demographic characteristics for each of the non-motorized boat categories, based on the results of NSRE, OIF, and ASD surveys. The typical, or stereotypical, non-motorized boater is generally young, white, college educated, with a relatively high household income. For the "enthusiast" category – the top tier of participants in terms of days of participation per year – these characteristics were even more heightened. Enthusiasts were even more often male, white, and highly educated with high incomes.

In general, participation rates decrease with age, after a point. For most non-motorized boating activities, the greatest participation rates were among those under 24 or 34 years of age. Participation in the 35 to 54 age category was still reasonably high for most boat types, but tended to drop off beyond age 55. In the enthusiast category, NSRE found that between 1994/1995 and 1999/2001, the percentages of enthusiasts 50 years or older in almost all activities rose, perhaps indicating an increasingly active, but aging, population of Baby Boomers. This trend was particularly evident in kayaking.

In terms of experience, there was typically a split between relative newcomers to an activity, and those with ten or more years of experience. The data seem to indicate that a higher percentage of individuals try an activity and may participate for a few years, but fewer keep with it. For each activity there was a subset of individuals, often seasoned experts and enthusiasts, that have participated for ten-years or more.

Appendix F Endnotes

[1] For the 1960-1961 survey: Abbott L. Ferriss, et al., *National Recreation Survey* (Washington D.C.: prepared for the Outdoor Recreation Resources Review Commission, ORRC Study Report 19, 1962); For the 1982-1983 survey: National Park Service, *1982-1983 Nationwide Recreation Survey* (Washington D.C.: U.S. Department of Interior, National Park Service, April 1986); For the 1994-1995 survey: H. Ken Cordell, Jeff Teasley, and Greg Super, *Outdoor Recreation in the United States: Results from the National Survey on Recreation and the Environment* (Athens, Georgia: Prepared for the USDA Forest Service, August 1997), and H. Ken Cordell, et al., *Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends* (Athens, Georgia: Sagamore Publishing, 1999); for the 1999-2004 survey: H. Ken Cordell, et al., *Outdoor Recreation for 21st Century America* (State College, Pennsylvania: Venture Publishing, Inc., 2004), United States Forest Service, *Recreation and Tourism Statistics Update, Participation in Outdoor Activities by People Living in Region 5* (Athens, Georgia: Southern Research Station, USFS, April 2006), United States Forest Service, *1999-2000 National Survey on Recreation and the Environment* (Athens, Georgia: Southern Research Station, USFS, 2001), H. Ken Cordell, et al., "United States of America: Outdoor Recreation," Chapter 16 in *Free Time and Leisure Participation: International Perspectives* (CAB International, 2005), and Vernon R. (Bob) Leeworthy et al., Projected Participation in Marine Recreation: 2005 and 2010 (Silver Spring, Maryland: National Oceanic and Atmospheric Administration and U.S. Forest Service, March 2005). With the exception of the published books, studies from the NSRE are available at: http://www.srs.fs.usda.gov/trends/Nsre?nsre2.html.

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[5] American Sports Data, Inc., *The Superstudy® of Sports Participation Volume 3, Outdoor Activities 2005* (Cortland Manor, New York: American Sports Data, Inc., 2006): and American Sports Data, Inc., "California"; "Ethnicity", and "Lifestyle Segments" reports (Cortland Manor, New York: American Sports Data, Inc., 2006).

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[7] The Sailing Company, *2006 State of the Industry* (Middletown, Rhode Island: The Sailing Company, 2006).

[8] NSGA Research News (National Sporting Goods Association, Volume 9, No. 10), May 30, 2007.

[9] Ibid.

[10] Ibid.

[11] Personal communication, Steve Lowry, El Toro International Racing Association, December 5, 2006.

[12] Personal communication, Susan Dennis, United States Optimist Dinghy Association, January 3, 2007.

[13] Personal communication, Tom Newton, International Naples Sabot Association, December 6, 2006.

[14] Ibid.

[15] California Department of Finance, Demographic Research Unit. Census 2000 Products, http://www.dof.ca.gov/HTML/DEMOGRAP/SDC /documents/SF4Ca.pdf.