

Section 1

Background of Non-Motorized Boating Study



1. Background of Non-Motorized Boating Study

This final report is organized into nine (9) sections and seven (7) appendices. The report sections herein are as follows:

1. *Background of Non-Motorized Boating Study*
2. *Boats and Boaters for Non-Motorized Boating*
3. *Waterways and Facility Needs for Non-Motorized Boating*
4. *Annual Economic Impact of Non-Motorized Boating*
5. *Recreational User-Values of Non-Motorized Boating*
6. *History and Laws of Non-Motorized Boating*
7. *Safety Issues Related to Non-Motorized Boating*
8. *Health Benefits of Non-Motorized Boating*
9. *Trends of Non-Motorized Boating.*

Appendices, at the end of this report, contain the following seven (7) sections:

- A. *Non-Motorized Boat Clubs and Organizations*
- B. *Statewide and Regional Random Surveys*
- C. *Active-User Internet Survey*
- D. *Commercial and Institutional Survey*
- E. *Interest Group Meetings*
- F. *Summary of Existing Studies on Non-Motorized Boating*
- G. *Bibliography.*

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Section 1 provides (1) a description of the study purpose and scope; (2) a definition of non-motorized boats for purposes of this study; and (3) a description of the study methodology.

The section is organized as follows:

- A. *Study Purpose and Scope*
- B. *Study Definition for Non-Motorized Boats*
- C. *Study Methodology.*

A. Study Purpose and Scope

The California Department of Boating and Waterways (DBW) was created by the California Legislature in 1957 to provide (1) safe and convenient public access to California's waterways and (2) leadership in promoting the public's right to safe, enjoyable, and environmentally sound recreational boating. DBW has a number of programs to support recreational boating in California, including: grants and loans for boating facilities;

funding for boating law enforcement; boating safety education; a non-motorized boating trails program; and aquatic weed management.

DBW has historically focused their efforts on *motorized* boating (including sailboats greater than eight feet in length). However, non-motorized boating has grown exponentially since DBW was established over fifty (50) years ago. Given this significant growth in non-motorized boating, DBW has considered expanding their scope-of-services for non-motorized boating.

As DBW examined non-motorized boating more closely, it became clear that relatively little was known about the universe of non-motorized boating in California. In 2006, DBW commissioned this research study of non-motorized boating in California to help address the lack of information on the non-motorized boating subject matter.

This research study, conducted over twelve months during 2006 and 2007, examined many aspects of non-motorized boating in California – the number and types of boats; characteristics of boaters, facilities and waterways used by non-motorized boaters; the economic impact of non-motorized boating; the recreational user-value of non-motorized boating; non-motorized boating history, laws, and safety; and health issues related to non-motorized boating. The study examined non-motorized boating at the statewide level, and for each of the ten (10) DBW regions, shown in **Exhibit 2.1**, on page 2-7 in Section 2.

This report provides DBW with a new, and better, understanding of the social and economic benefits, as well as the needs and issues related to non-motorized boating in California. This study will help DBW to (1) understand how many, and what types, of non-motorized boats there are in California; (2) understand how economically important non-motorized boating is to California;

and (3) potentially plan future facilities to meet the needs of California's non-motorized boaters. Information in this report can be used by DBW as a planning tool, allowing DBW to better develop future facility programs, and to potentially allocate future funding for non-motorized boating activities.

B. Study Definition for Non-Motorized Boats

It is important to carefully define what is, and what is not, included within the definition of non-motorized boats in California. Initially, this definition issue was important to ensure that all survey respondents were clear in their answers as to whether they had a “non-motorized boat”. In addition, it was important to our later analysis to precisely define what non-motorized boats we measured.

For purposes of this study, “non-motorized boat” means any boat not currently registered with a vessel registration (CF) number from the California Department of Motor Vehicles. This non-motorized boat definition includes: (1) boats propelled by paddles or oars (and usually without a motor), such as canoes, kayaks, inflatable boats and rafts, rowing boats (including row boats, shells, sculls, dories, and driftboats), and other types of manually propelled boats; (2) small sailboats, 8 feet in length or shorter (and usually without a motor); and (3) sailboards and kiteboards. Non-motorized boats do not include “toy like” blow-up rafts and other non-durable water toys, nor do non-motorized boats include inner tubes or fisherman float tubes (without oars). Finally, non-motorized boats do not include normal surfboards, beach boogie boards, or riverboards.

Exhibit 1.1, starting on page 1-3, describes seven (7) general categories of non-motorized boats. **Exhibit 1.2**, on page 1-6 illustrates some potential non-motorized boats that were *not* included in this study.

Exhibit 1.1
Descriptions and Examples of Non-Motorized Boats








Boat	Description	Examples ¹
1. Canoe	<p>A relatively small, narrow boat, typically human powered, and typically pointed at both ends and open (although the back may be flat, and the canoe may be covered). Canoes are typically designed for one or two paddlers, and may hold additional passengers and/or gear. Paddlers sit, or kneel, facing forward, and usually use a single-blade paddle. Canoes can be made of a variety of materials, including wood, aluminum, and composites. There are a range of specialty canoes, including fishing and hunting canoes; outrigger canoes; whitewater canoes (often with a closed deck); and inflatable canoes.</p>	  
2. Kayak	<p>A small, human-powered boat, typically with a closed deck, and a cockpit covered by a spray skirt. Kayaks are propelled by a double-blade paddle, and are usually designed for one or two people, who sit facing forward. Kayaks are made from a wide range of materials (wood, cloth, fiberglass, and plastic). There are a number of specialized types of kayaks with varying shapes, sizes, and structures. Kayak types include whitewater, surf, sea, inflatable, fishing, crabbing, surfski, playboat, and scuba diving.</p>	  
3. Inflatable Boat and Raft	<p>A group of inflatable vessels, originally made of rubber, and now typically made of layers of rubber and/or plastic composites. Inflatable boats consist of flexible tubes, typically with a flat floor. Cataracts consist of two or more pontoons, held together by a frame for seating and storage. Transoms typically have a solid stern, sometimes used to attach a motor. Rafts typically are oblong, with flexible tubing around the entire circumference.</p>	

Exhibit 1.1
 Descriptions and Examples of Non-Motorized Boats (continued)









Boat	Description	Examples ¹
4. Small Sailboat	These vessels must be eight feet in length, or shorter. There are three “one-design” models that are raced; the El Toro, the Optimist, and the Sabot (including the Naples Sabot). There are specific design specifications for each of these three boats. For example, the El Toro is 7 feet, 11 inches in length, has a beam of 3 feet, 10 inches, has a sail area of 49 square feet, and a hull-only weight of 60 pounds. The Optimist is 7 feet, 7 inches in length. The Naples Sabot has similar unique design specifications.	
5. Row Boat, Dory, or Driftboat	A relatively wide, flat-bottomed boat, typically propelled by two oars resting in pivots. Most row boats are propelled facing backwards, although river dories are propelled facing forwards. These boats were originally made from wood, although they are now also made of fiberglass and aluminum.	
5. Rowing Shell or Scull	A specialized type of rowing boat, used for competition and recreation. A rowing shell is long, and narrow, propelled using oars, attached at oarlocks. Boats are designed for one, two, four, or eight rowers. When the rower uses two oars, it is referred to as a scull, and when a rower uses one oar, it is referred to as a sweep. Boats are typically directed by a coxswain, who sits in the stern, steers the boat, and motivates the rowers. These boats were originally made of wood, and are now made of composites.	
6. Sailboard or Windsurfer	A hand-held sail and rig attached to a board with a universal joint, operated by standing on the board. Technically, defined as a sail propelled vessel with no freeboard and equipped with a swivel mounted mast not secured to a hull by guys or stays.	

Exhibit 1.1
Descriptions and Examples of Non-Motorized Boats (continued)

Boat	Description	Examples ¹
6. Kiteboard or Kitesurfer	A power kite connected to a harness and control bar. The harness is worn by the rider, who stands on a small surfboard, wakeboard, or kiteboard (with footstraps). Kite sizes and shapes vary depending on wind conditions, and skill of the kiteboarder.	
7. Dragon Boat	A wood and fiberglass canoe-like boat, wide enough for two people and typically about 45 feet long. Usually holds 20 paddlers, a steersman, and a drummer. Paddlers face forward, and paddle in unison. The boat has a dragon's head at the bow, and dragon's tail at the stern.	
7. Paddleboat or Pedal Boat	A small rectangular plastic boat, propelled by bicycle-style pedals attached to a paddle wheel. Usually designed for two pedalers plus passengers. Typically used on small lakes and ponds for recreation.	
7. Stand Up Paddle Surfing	A form of surfing, using a specialized long surfboard (typically 12 feet in length) and a carbon fiber paddle eight to ten inches longer than the person paddling. The paddler stands on the surfboard and propels themselves with the paddle and in some cases also riding waves. This activity originated centuries ago among Hawaiians and Polynesians, and has recently begun to gain popularity in the United States, primarily in Hawaii and California. Stand-up paddle surfing can take place in surf, or in calm bodies of water.	

1. Background of Non-Motorized Boating Study

Exhibit 1.2

Examples of "Boats" NOT included in the Non-Motorized Boating Study²

		
Surfboards	Riverboards	
		
Inner Tubes	Toy Rafts	Float Tubes

There are significant ambiguities in the precise definition of non-motorized boats. Carefully defining non-motorized boats served to reduce these ambiguities. However, without legal clarification at the federal and/or state levels, the definition of non-motorized boats will continue to remain ambiguous. Because precisely defining non-motorized boats is so challenging, there likely is (1) some counting of vessels in this study that were not within our definition of non-motorized boats, as well as (2) some undercounting of vessels that should have been within the study definition. Therefore, study counting errors likely could be both positive and negative.

To provide a clearer definition of non-motorized boats in the future, it might be necessary to list specific types, and perhaps even brands, of vessels, particularly in the most ambiguous categories, such as inflatable boats. This would obviously need to be a dynamic list, as manufacturers are continuously entering and exiting the marketplace. For purposes of this study, we accepted that there was considerable ambiguity in the definition of non-motorized boats, and thus some uncertainty in the precise number of non-motorized boats, particularly by boat type. However, this acceptance did not preclude provision of best estimates of the number of non-motorized boats in California, at the level provided in this report.

C. Study Methodology

This study was the first of its kind in the United States. While prior United States studies have reviewed a particular aspect of non-motorized boating, such as national boating participation rates, or boating safety, there had been no other broad assessment of non-motorized boating in California, at the national level, or in any other state. As a result, this research study included a significant amount of

primary data-gathering, as well as reviewing numerous studies and reports that were completed on individual aspects of non-motorized boating.

This study methodology was designed to address several unique challenges. First, the study had to include all types of non-motorized boats, as defined above. While some non-motorized boat types may at first appear to be nominal, in a state the size of California, a subset of non-motorized boats may still represent a significant number of boats and boaters.

For the second study challenge, the various types of non-motorized boats were diverse, resulting in a wide range of boater characteristics, opinions, and facility needs. For example, the study could not simply identify the needs of whitewater kayakers, and then apply that to the other boating sectors – the study needed to identify the specific needs of different types of non-motorized boats.

The third study challenge was that within any particular type of non-motorized boat owners, there were at least two classes of users: casual and active. Casual users and active users had distinctly different attributes, interests, and needs. Casual users may own one or more non-motorized boats, but they use them only rarely, usually for recreational purposes. Active users may own many non-motorized boats, and they use their boats regularly.

A fourth, and final, study challenge was that the study needed to consider the myriad of ways in which Californians participate in non-motorized boating. These alternative means of participation included guided trips, rentals, institutional programs, and non-motorized boating classes.

To help address these many study challenges, and to meet information requests of DBW, the research study included three (3) primary data

surveys, thirteen (13) special interest group meetings, over forty (40) telephone interviews with experts, and a review of over one hundred (100) secondary references. Below, we briefly describe each of these approaches.

1. *Statewide and Regional Random Surveys* – A random telephone survey of 474 non-motorized boat owners included a random sample of 351 boat owners statewide, and between 25 and 87 random boat owners in each of the ten DBW regions. These random surveys included questions about non-motorized boat numbers and types; boating waterways; boating facilities; reasons for boating; boating safety; annual and trip boating expenditures; and boat user demographics. These random telephone surveys were conducted between November 2006 and April 2007, by Quantum Market Research, Inc. (Oakland, California).
2. *Active-User Internet Survey* – This non-random survey used essentially the same survey instrument as the random survey; however, this survey was placed on DBW web page. Respondents completed the survey online and submitted results directly to NewPoint Group. Non-motorized boating organizations throughout the State were informed of the survey, and asked to encourage their members to participate. This survey was conducted between December 2006 and February 2007, with 1,518 completed surveys.
3. *Commercial Business Survey* – This was an attempted census of commercial outfitters, rental companies, and retailers. A total of 112 commercial entities completed the survey. The purpose of this survey was to identify the number and types of non-motorized boats in California within the “commercial fleet”, to gather information on commercial activities for the economic impact analyses, and to identify facility needs and trends from a business operator’s perspective.
4. *Special Interest Group Meetings* – In order to obtain direct input from a variety of non-motorized boaters throughout the

State, the study included thirteen (13) special interest group meetings, which were held between May 2007 and July 2007. For the most part, these meetings were held during regularly scheduled non-motorized boating organization meetings. At each meeting, the research study team made a PowerPoint presentation summarizing (1) the scope and purpose of this study, (2) preliminary study results, and (3) questions for non-motorized boaters. A significant portion of each special interest group meeting was spent obtaining input from participants on non-motorized boating issues. At least one meeting was attempted to be held in each of the ten regions, as well as for each of the non-motorized boat types.

5. *Expert Interviews* – During the course of this study, the study team conducted interviews with over forty (40) experts on various non-motorized boating topics. These experts provided invaluable information on topics such as non-motorized boating accidents and safety; history of non-motorized boating; health impacts of non-motorized boating; river management; commercial boating permit participation data; and boating facility needs on specific waterways.
6. *Economic Impact Analysis* – The study included an economic modeling component in order to determine the economic impact of non-motorized boating in California, including the non-motorized boating contribution to Gross State Product (GSP), jobs, and tax revenues. The study utilized IMPLAN modeling from the Minnesota IMPLAN Group (MIG) to calculate the various economic impact components. Base data were obtained through the primary data surveys, and these data included consumer spending on (1) non-motorized boating trips, (2) guided trips, (3) rentals, (4) classes, (5) durable goods, and (6) services. The economic impact modeling determined direct, indirect, and induced impacts of non-motorized boating in the State.

7. *Secondary Research and Literature Reviews –*

The final component of the survey methodology included an extensive review of existing literature on non-motorized boating in the United States. A number of studies have assessed specific aspects of non-motorized boating, such as participation in recreational paddling

activities; safety of non-motorized boating; non-motorized boating accident data; non-motorized boating laws and regulations; and health impacts of boating recreational activities. The study team reviewed over one hundred (100) secondary literature documents and incorporated their relevant findings into this study report.



Section 1 Endnotes

- ¹ The outrigger canoe picture is courtesy of Pale Kai Outrigger Club; the kiteboarding picture is from The San Francisco Bay Area Water Trail Plan, Bay Conservation and Development Commission, July 6, 2007; the small sailboat picture is courtesy of the Mission Bay Aquatic Center.
- ² The riverboard picture is courtesy of El Dorado County; the float tube picture is courtesy of Fly Fishers of Davis.