A person in a red kayak is on a lake, with mountains in the background. The scene is captured in a high-contrast, blue-tinted style. The person is in the center of the frame, paddling the kayak. The water is dark blue, and the mountains in the distance are a lighter shade of blue. The sky is a deep, dark blue.

LAKE TAHOE NON-MOTORIZED BOATING SURVEY 2008

Prepared For
Lake Tahoe Non-Motorized Boat Working Group
Lake Tahoe, California

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Funded by
California Department of Boating and Waterways
Nevada Commission on Tourism
California Tahoe Conservancy
Nevada Department of Wildlife

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Final Report
June 2009

Prepared for

Lake Tahoe Non-Motorized Boat Working Group
Lake Tahoe, California

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This study, prepared for the Lake Tahoe Non-Motorized Boat Working Group by Chuck Nozicka Consulting and the University of Nevada Reno, Department of Resource Economics, is intended to assist non-motorized boating stakeholders, local communities, private recreation industry, public resource managers, and regional decision makers with planning and development efforts in the Lake Tahoe Basin.

In preparing this report we have received guidance and assistance from many individuals and organizations, which we thankfully acknowledge, including those entities that provided funding for this research project: The California Department of Boating and Waterways, The Nevada Commission on Tourism, the California Tahoe Conservancy, and the Nevada Department of Wildlife.

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In addition, we want to express our thanks for the cooperation and support of a wide variety of stakeholders who participated in Lake Tahoe Non-Motorized Boat Working Group meetings, reviewed research design and report results, and contributed valuable information and insight toward this project. Participants included public and private sector boating managers, Lake Tahoe homeowners, tourism business proprietors, representatives from visitor industry associations, and public lands and recreation related managers.

Finally, special thanks Sue Rea Irelan, of the California Tahoe Conservancy. Without her support and assistance, this report would not have been possible.

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EXECUTIVE SUMMARY

The following are primary findings for the **Lake Tahoe Non-Motorized Boating Survey** conducted for the Lake Tahoe Non-Motorized Boat Working Group (NMBWG) and which investigated non-motorized boating patterns in the Lake Tahoe Basin. The reported findings represent data collected during the summer and early fall 2008 travel season with the research focused on the peak portion of that season – principally the 4th of July through Labor Day. The study was conducted by the team of Chuck Nozicka Consulting and the University of Nevada, Reno, Department of Resource Economics (UNR).

Objectives and Methodology

The research project was designed to provide an accurate profile of non-motorized boat use patterns on Lake Tahoe. The boating pattern analysis specifically addressed use by boat type, years of participation in the activity, participating persons per household party, day versus overnight paddle trips, and time spent during each portion of the trip. The report also gathered boater facility ratings, motivations for boating Lake Tahoe and provided a respondent demographic profile and visitation characteristics.

The findings are derived from 128 resident and 360 visitor respondents for a total of 488 completed surveys conducted during the summer of 2008. The methodology relied on a self-administered survey and an Internet questionnaire, with intercept questionnaires completed by the respondent and returned to fielding staff on-site and Internet respondents providing completed surveys via post. Respondents included residents of the Lake Tahoe Basin and visitors.

Summary of Findings

The following presents findings, research observations, and conclusions for the *Lake Tahoe Non-Motorized Boat Working Group (NMBWG) Lake Tahoe Non-Motorized Boating Survey, 2008*. The findings present all results by resident and visitor respondents, a respondent demographic profile, boating patterns, travel characteristics, and reported non-motorized boater visitor expenditures.

Non-Motorized Boating Trends

- An estimated 48-52 million Americans participate in non-motorized boating, with kayaking experiencing the most robust growth.
- Paddling trails are characterized by a variety of management types, are typically operated via a set of stewardship principles, and are supported by active stakeholder participation.
- California has an estimated 2.1 million regular and 390,000 casual non-motorized boaters.
- Kayaking has the highest number of participation days of any California non-motorized boating activity.
- Recent studies show that 13.7% of visitor recreation parties and 9.5% of resident parties have a member participating in canoeing, kayaking, and rafting on the Lake Tahoe.

Respondent Profile

- Resident paddlers somewhat skew to either younger (44 and under) or older (65 and older) age cohorts, with the visitor majority 45 to 55. However, the overall average age for paddlers is nearly identical between resident and visitor paddlers (45.9 years for resident, 45.5 years for visitors).
- Both resident and visitor non-motorized boaters in Lake Tahoe have similarly high education levels, with a majority of each having a college or graduate degree.

- Though residents have somewhat lower household incomes, both groups are relatively well off, with the majority in households with annual incomes over \$50,000.
- The bulk of visitor paddlers (90.2%) arrive from either California or Nevada.
- The majority of both California and Nevada paddlers arrive from the northern portion their respective states.
- The majority (64.1%) of visitors stayed overnight during their trip to Lake Tahoe, however day visitors were more likely to visit primarily to paddle.
- Overnight non-motorized boating participants were most likely to say that they stayed in a second/rented home or used a public camp ground. About one in five used a hotel or motel.
- Personal knowledge was by far the most mentioned information source for paddling in Lake Tahoe.

Boating Patterns

- The bulk of resident (75.7%) and visitor (68.2%) boaters own their watercraft.
- Touring kayaks are the predominant boat of choice for both residents (85.4%) and visitors (70.9%)
- Most non-motorized boaters report using a life vest (resident 84.8%; visitors 86.8%).
- Most respondents reported paddling with others on their outing (residents 72.7%, visitors 72.4%); resident paddling group size was an average 2.57 persons and visitors 3.37 persons.
- Resident paddle outing time – including the put-in, time on the water, stops on land, and take-out – is an average of 3 hours and 7 minutes; visitors spend a total average of 3 hours and 44 minutes.
- However average time on the water is nearly identical (residents 105.8 minutes; visitors 105.7 minutes).

- The vast majority of respondents reported day paddles (94.8%), with the vast majority of these reporting outings from and back to the put-in location (residents 93.5%; visitors 97.7%) rather than a point to point trip.
- A small percentage of paddlers reported multiple day paddle trips (5.2%); most of these multi-day paddles are relatively short – three days or less.
- The three most mentioned morning put-in locations during multiple day outings were Meeks Bay, Sand Harbor, and Kings Beach.
- Multiple day paddlers were most likely to stay in a public campsite during their trip (residents 36%, visitors 35.1%); however 27.0% of residents mentioned using an undesignated public or private lake shore camp site compared to 3.5% of visitors.

Boating Preferences

- Overall, the majority of respondents gave favorable ratings to boating facilities on Lake Tahoe.
- Facilities rated more poorly and mentioned as needing improvements were: parking (residents 19.6%, visitors 19.2%), followed by access to land campsites, low docks for small watercraft, and directional signage to non-motorized boating sites.
- In comparison with visitors, residents indicated a greater perceived need for facility improvements.
- Scenic beauty is the most mentioned reason for paddling at Lake Tahoe (residents 97.9%; visitors 97.2%), followed by being with family and friends, physical challenge/exercise, boat access to Lake Tahoe beaches, and experiencing solitude.
- Among reason for paddling Lake Tahoe, both residents and visitors had remarkably similar attitudes, with very little variation between these two groups of users.
- Visitor households reported an average total trip expenditure of \$792.73 in the Lake Tahoe Basin.

Invasive Species Awareness

- A majority of residents (52.8%) and a corresponding minority of visitors (23.9%) reported being very knowledgeable about the threat of invasive species (such as Quagga and Zebra Mussels) to Lake Tahoe. An additional 47.2% of residents and 46.5% of visitors said that they were somewhat aware of the threat.
- Nearly one-in-three visitors (29.6%) reported having no knowledge of the invasive species threat.

Planning Implications

The information gathered during this study implies a range of issues for resource and recreation and facility planners and managers. The following presents summarized planning implications based on the data as well as consultant observations. A thorough review of the findings in this document may further indicate to individual stakeholders, the specific issues and potential resolutions that pertain to their areas of responsibility and expertise.

Non-Motorized Boating Trends

Continued growth in non-motorized boating, particularly among those who use touring kayaks, will most likely be reflected in activity volume in the Lake Tahoe Basin. Data indicates that even during the current economic contraction, boating related expenditures and participation remains robust, with this implying that future boating participation will increase along with economic recovery. Similarly, emerging non-motorized activities such as paddle boarding may contribute to future increased use and somewhat change the Lake's non-motorized boater profile and associate facility needs.

As a result resource managers will need to track non-motorized boating activity over time and communicate with the paddling public through stakeholders and through direct

measures like this survey. Finally, increased use will require attention to the current facilities and may drive a future reassessment of and reinvestment in these facilities.

Respondent Profile

Paddlers in Lake Tahoe represent a somewhat older, better educated and higher income recreational group compared to recreation users overall. Accordingly, paddlers may be expected to observe conscientious stewardship behavior or at least may be more responsive to communications about stewardship. In addition, this profile indicates an economic opportunity for Basin recreation oriented businesses. For example, lodging properties that provide boating facilities can capture a new market of high income visitors while lake shore restaurants that want to attract paddlers could provide temporary boat storage or low docks, and those wanting to expand services such as shuttles could also target these users. Finally, there is an opportunity to enhance communications with the paddling public through websites, mapping, and recreation facility information.

Boating Patterns

Since most paddlers participate in a group, recreation providers can concentrate on providing amenities and information materials that can serve or educate group outings. In addition, with the vast majority taking day paddles, day use facilities more so than overnight camping facilities will need improvements and additions. In particular parking and related boat accessible locations and their amenities will need monitoring for capacity and quality. For the minority of boaters that do conduct multiple day paddles, managers may need to address their land based amenities including parking (at initial put-in), secure boat docking, camping, and services including supplies. Finally, frequent activity by resident boaters means that many user needs may be identified and potential conflicts, including private

property issues, resolved with active internal community dialogue and communications.

Boating Preferences

Associated with frequency of use by residents, is an apparently keen awareness of facility needs. Accordingly, ongoing dialogue with local boaters can help facility managers stay ahead of emerging problem areas and can provide insight into details about specific facility needs and their locations. Among needed improvements mentioned by all boaters, parking is the primary concern. Since parking addresses an array of other recreation uses that compete for parking availability, this finding implies that addressing parking issues for paddlers also concurrently addresses access issues for other recreation user populations. Other suggested facility improvements include low docks for small craft and directional signage that may alleviate congestion and inform travelers of alternative non-peak boating opportunities during their time at Tahoe.

Finally, both resident and visitor boaters share very similar attitudes about their reasons for paddling at Lake Tahoe – the spectacular alpine setting, beach access, simple physical benefits of paddling on the Lake, and socializing with friends and family. These common motivations provide stakeholders and facility managers with an opportunity to effectively dialogue with a receptive stewardship-oriented recreation user population that has a largely shared perspective on why they chose to boat in the Lake Tahoe Basin.

In terms of visitor expenditures, Lake Tahoe's visiting paddlers represent an attractive segment of highly educated and relatively affluent recreation users. Lengths of stay and associated expenditures provide an opportunity to increase the economic benefits this use has for Lake Tahoe Basin businesses and communities.

Invasive Species Awareness

The threat of invasive species is relatively well-known by residents, with visitors needing much additional education about the issue. In all cases, there is room to enhance communications about the invasive species threat which may be accomplished at boating sites and through boating related information portals including web sites, mapping materials, guidebooks, and via private boating product and service businesses and public facility providers.



1. INTRODUCTION

The following presents an introduction to the *Lake Tahoe Non-Motorized Boating Survey, 2008* a planning project designed to assist the Lake Tahoe Non-Motorized Boat Working Group (NMBWG) by profiling current non-motorized boating recreation on Lake Tahoe. The project was funded by the working group through grants from four key project partners including:

- The California Department of Boating and Waterways
- The Nevada Commission on Tourism
- The California Tahoe Conservancy
- Nevada Department of Wildlife

The research project was supervised by Chuck Nozicka Consulting (CNC), Tourism and Recreation Planning, a professional consultant with substantial experience working in the Lake Tahoe recreation planning and policy environment. Mr. Nozicka was assisted by a research team from the University of Nevada, Reno (UNR), Department of Resource Economics in the College of Agriculture, Biotechnology, and Natural Resources. The UNR research team was directed by principal investigator Professor Klaus Moeltner, Ph.D. Key aspects of this research are as follows:

- Conducted during the summer and fall of 2008
- Intercept, hand-out, and Internet sampling
- Visitor ($n=360$) and resident ($n=128$) samples

Note that for purposes of this report all non-motorized boating activities will be addressed as *boating* or *paddling*. This includes kayaking, paddle boarding, windsurfing, canoeing and other associated approaches to recreational boating by use of non-motorized water craft. Finally, a note to the reader: the author is not a paddler.

Project Context

This project was initiated by the Lake Tahoe Non-Motorized Boat Working Group as part of an overall planning effort charged with investigating all planning and management issues associated with paddle sports on Lake Tahoe. This effort commissioned the survey to identify the unique characteristics of paddling on Lake Tahoe including use patterns that might be the most applicable to management issues.

Non-Motorized Boating Trends

Paddle sports have been a growing boating activity for several years, with an estimated 48-52 million Americans participating in paddle sports and their various forms annually (*National Survey on Recreation and the Environment, US Forest Service 2004*). While canoeing and rafting, long time mainstays of paddle sports, have been attracting millions of participants for some time, national information sources indicate that kayaking has experienced the most robust growth in recent years.

Kayaking Growth

According to the American Canoe Association, participation in kayaking grew dramatically between 2000 and 2004 or from 2 million to 10 million participants during the five year timeframe (*American Canoe Association; Proceedings: The ACA and You 2008*).

Even during the current economic contraction, expenditures on paddling have maintained a respectable pace. During the first Quarter of 2009 recreation kayak sales increased 7% in dollars (*Outdoor Industry Association 2009*). While the bulk of these recent sales are attributed to accessories and small purchases, expenditures indicate that paddle sport consumers have a financial and, by implication, a long term time commitment to this “outdoor lifestyle” activity.

Paddling Trails and Tours

To accommodate the popularity of paddling, water tours and trails that are either de facto or designated have received increased attention. Some destinations such as Minnesota's *Boundary Waters Canoe Area* have been in operation for many years while the *water trail* concept has taken hold in every state including California with ongoing planning activities on the San Francisco Bay Water Trail.

While paddle tours and trails are of increasing interest nationally, these recreation resources and their organizing proponents show several common characteristics whether the paddle activity is located on a designated water trail or on a de facto water tour. These characteristics as observed during the literature and Internet search by the consulting team can best be summarized as follows:

- 1) Vary by Management type. Each paddling resource is managed according to forms which seemingly best suit the user base, constituency, and management issues. Some are formally planned, managed, and designated while others are operated on an informal basis or represent padding on waterways served by business entities such as lodging properties or commercial guides and outfitters;
- 2) Operated Via a Set of Common Core Values. As emphasized in most water trail materials, stewardship of the resource is a primary concern. This is probably because the environmental conditions and characteristics that attracted paddlers in first place must be maintained in order for the paddling experience to be of a sustainable high quality. This also implies that paddlers themselves are particularly focused on monitoring the quality of the water resources. In addition, paddling resource sites stress boating safety

and respect for other boaters as well as those land uses that adjoin these water resources;

- 3) Active Stakeholder Participation. Paddling resource areas are typified by an active group of stakeholders that conduct boating outings, educational activities, and actively participate in management planning, policy development, and ongoing stewardship responsibilities. Note that in some cases, active stakeholders through not-for-profit organizations either manage or assist with recreation resource management policies much like the Tahoe Rim Trail not-for-profit organization currently operating in the Lake Tahoe Basin.

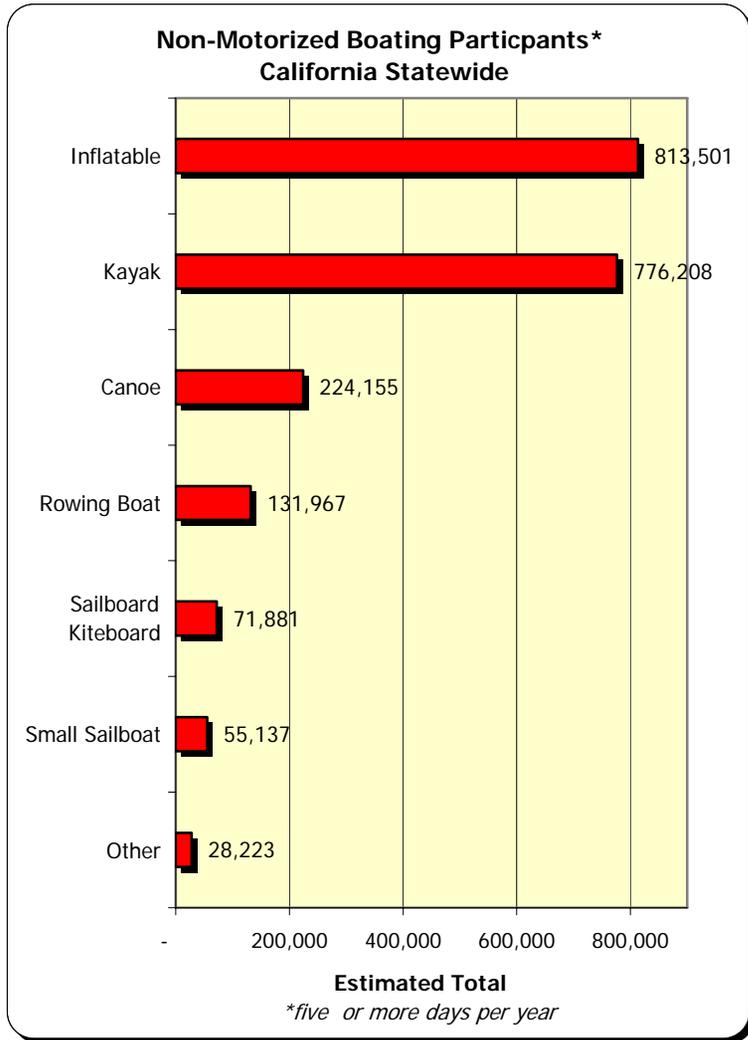
These characteristics are important because they provide a context for the Lake Tahoe Non-motorized Boating effort and imply that the stakeholder groups of paddlers active in the Basin, are likely to remain a key contributor to long term paddle community and resource management success.

Paddling in the California

The State of California Department of Boating and Waterways recently conducted a statewide study of non-motorized boating (*Non-Motorized Boating in California, 2008*) which can provide relevant context for this project. Note that no comprehensive survey effort has been conducted in Nevada to date.

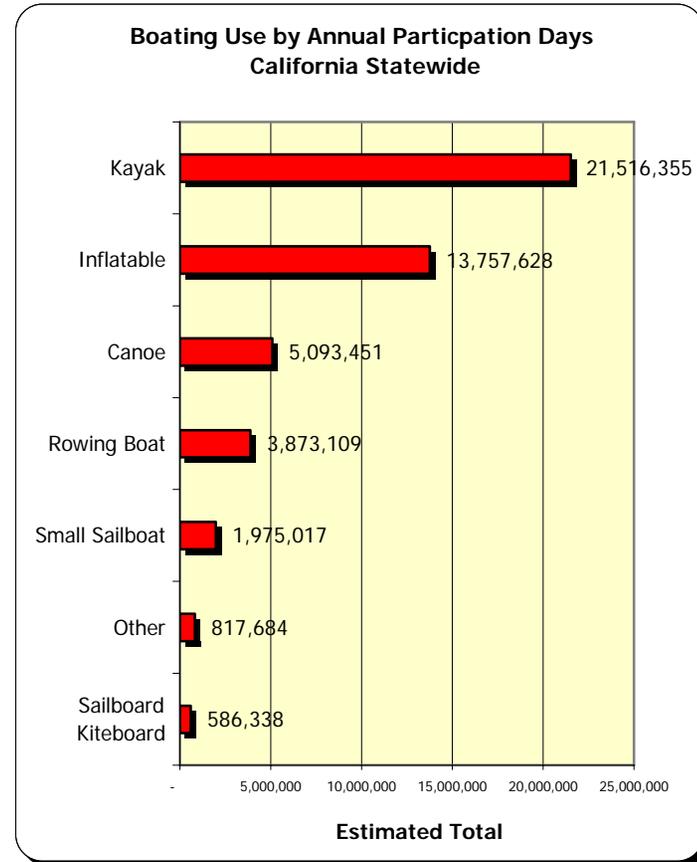
The number of people who participate in non-motorized boating is significant, with an estimated 2.1 million regular boaters (*boated 5 or more days per year*) and an additional 390,000 casual boaters (*1 to 4 days per year*). Among these boaters, inflatable boats and kayaks are the most popular water craft by a fairly wide margin. However, note that inflatable boats offer entry to paddle sports via a

typically lower cost. This water craft category also includes river rafting as well as flat water and ocean recreation.



Source: Non-Motorized Boating in California, 2008

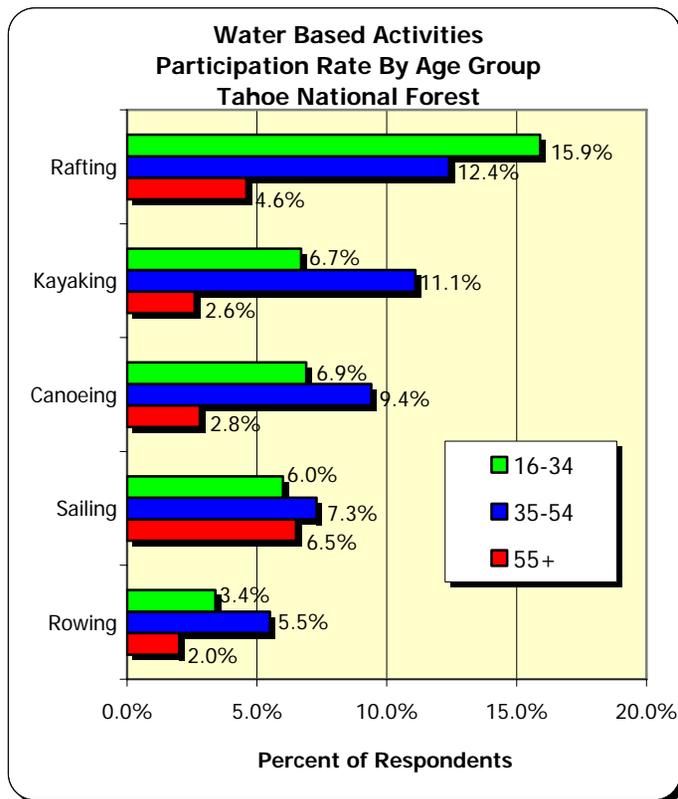
When measuring use patterns according to the reported number of days utilized per year, kayaking becomes a predominant non-motorized boating activity, with 21 million boating days estimated to occur annually throughout California.



Source: Non-Motorized Boating in California, 2008

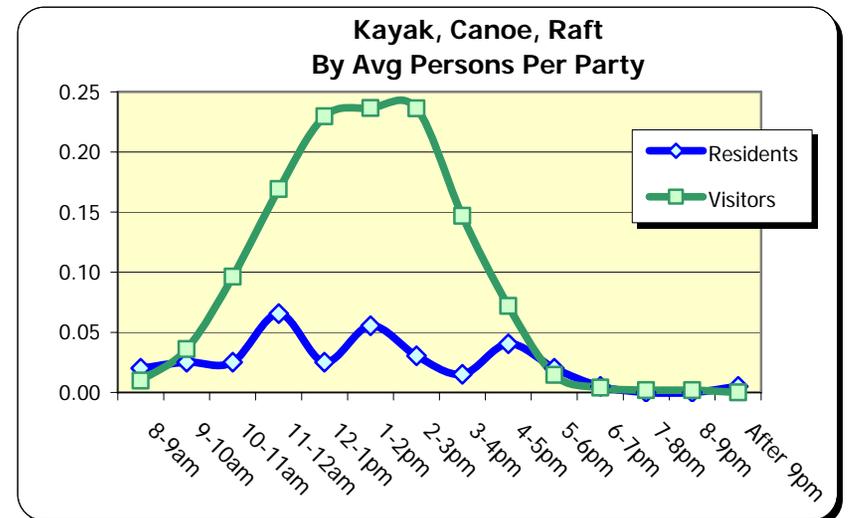
Paddling in the Lake Tahoe Region

A somewhat more focused view shows that water-based recreation activities in the Tahoe National Forest present similar patterns to those found in California, with rafting and kayaking showing the highest participation rates. Note that kayaking and canoeing activities are most popular among those in the mid-age groups while rafting is favored by younger cohorts. Note also that these data cover Tahoe National Forest areas outside of the Lake Tahoe Basin and include both Nevada and California.



Source: National Survey on Recreation and the Environment, 2004

Research conducted for the Tahoe Regional Planning Agency in 2004, yielded additional contextual information for non-motorized boating within the Lake Tahoe Basin proper. First, 13.7% of visitor parties and 9.5% of resident recreation parties had at least one person within their group participate in canoeing, kayaking or rafting sometime during their overnight trip or day outing to Lake Tahoe. These rates of participation are roughly in line with the reported Tahoe National Forest participation rates. As indicated, visitors show a peak use concentrated during mid-day hours while residents distribute their paddle activity at various opportune times likely fitting community work schedule patterns.



Source: Recreation Frequency and Duration Survey, 2005

This study also provided total user numbers for an average summer day. Using group participation data and applying estimated lodging and residence unit capacity, a total number of users per hour was calculated. For visitors kayaking, canoeing, and rafting peak hour use totaled 7,435 persons (between 1 and 2pm); while residents had a peak of

874 users (between 11am and 12 noon). (*Recreation Frequency and Duration Survey, TRPA, 2005*)

Lastly, paddle sports also represent an important visitor attracting activity including the important employment and tax revenues contributed to Lake Tahoe communities by visitor and resident expenditures. Note that the Nevada Commission on Tourism and the North Lake Tahoe Resort Association, as well as other tourism groups, feature paddling as part of their marketing effort. In the photo below, the Nevada adventure sports ad campaigns features the well-known Blue Man Group paddling on Lake Tahoe.



Source: Nevada Commission on Tourism, Advertisement

Context Implications

The information summarized in this Project Context discussion demonstrates that while the report examines paddling on Lake Tahoe specifically, non-motorized boating activities occurring in a wider national and regional scope of use are most likely affecting use patterns on Lake Tahoe. In short, a growing demand for popular non-motorized

waterborne recreation. Accordingly, as a public waterway, and one with a remarkably beautiful setting, Lake Tahoe will probably see long term paddling trends including overall boating growth, contraction, or changing boating preferences reflected in paddle sport activities on Tahoe's blue waters. The 2008 survey then, represents a snapshot-in-time that can be useful to recreation policy makers and facility managers now. However, the Lake Tahoe Non-Motorized Working Group is considering paddling issues in a dynamic recreation environment and will need to keep these wider trends in mind as they consider the future of non-motorized boating on Lake Tahoe.

Non-Motorized Boat Working Group

The Lake Tahoe Non-Motorized Boat Working Group (NMBWG) has been involved with non-motorized boating issues on Lake Tahoe for several years. Initially, the group was convened to consider designation of a Lake Tahoe Water Trail, with the organization evolving to concentrate on overall boating planning and policy issues rather than pursue a formal Water Trail designation. As a broad-based group, the full range of boating stakeholders has been invited to participate in planning and management meetings. Past and present NMBWG participants include but are not limited to the following:

- The California Department of Boating and Waterways
- Lake Tahoe Water Trail Committee
- Lake Tahoe Lakefront Homeowners Association (LFHA)
- California Tahoe Conservancy
- Nevada Division of Wildlife
- Nevada Division of State Parks
- United States Forest Service, LTBMU
- California State Parks
- The Tahoe Regional Planning Agency
- North Lake Tahoe Resort Association
- Zephyr Cover Resort

The group is currently facilitated by Barbara Rice, National Park Service, Rivers Trail and Conservation Assistance, an organizational expert with significant experience in recreation resource and community planning projects throughout the western United States.

Survey Planning Process

As part of research project development the consulting team met with the NMBWG to identify the principal planning issues and to provide members with the opportunity to review and revise the survey instrument as well as the sampling methodology. In addition to identifying boater demographics and boating patterns several specific issues were identified including;

- Nevada Division of Wildlife. Water safety with specific attention to life vest use;
- California Department of Boating and Waterways. Identify facility needs and preferences including specific questions about special needs access;
- Tahoe Regional Planning Agency. Though later in the project development process, the team was introduced to the Lake Tahoe invasive species threat and associated monitoring activities and therefore included an issue awareness measure in the survey;
- Lake Tahoe Lakefront Homeowners Association. This organization of lake front property owners was primarily concerned with private property rights in the form of camping or boat take out at undesignated (private) sites during multiple day paddle tours.

Since the preservation of private property rights while providing access and facilities to adequately serve the paddle sport resident and visitor population was a primary concern, the consulting team designed and printed a separate questionnaire that was provided via the NMBWG to the homeowners association for its paddling members.

Survey responses were not received for this analysis, though representatives did attend all associated NMBWG meetings and were provided draft surveys and draft reports for comment and revision.

Given the number of stakeholders and the associated issues that could have been addressed within the survey the team developed a comprehensive and actionable questionnaire that allowed the respondent to answer all questions within a maximum 20 minute period. Note that the team also avoided leading questions and used questionnaire design to target issue areas accurately. The questionnaire went through several iterations as a result of NMBWG member review and comment before it was approved for field research work. While not every specific topic could be covered in one survey, the instrument covered a maximum range of issues possible within the research parameters.

Goals and Objectives

The project was designed to provide an accurate profile of non-motorized boating including but not limited to activity patterns and perceptions of and preferences for non-motorized boating recreation on Lake Tahoe. Ultimately the research primarily focused on canoe and kayak non-motorized recreation.

For the primary data collection tasks we used a self-administered on-site intercept survey, with a design that allowed the intercept to be augmented by a sample provided at boating rental concessions, campgrounds, via the Lake Tahoe Water Trail Internet site, and to the Lake Front Homeowners Association. Finally, note that the survey was designed to include both resident and visitor user populations.

The self-administered intercept (completed on-site) methodology was used because it does not require one-on-

one interviews by fielding staff and yet ensures a measurable number of returns and controllable sample for each fielding location. Surveys were completed by the respondent and returned to fielding staff on-site. This allowed for maximum number of completed surveys per the budget. This design was also selected to allow for the mentioned augmented sampling alternatives. Given the range of factors to be analyzed we collected 488 usable returns.

Specifically, the overall survey project proposed the following:

- Established the profile of non-motorized boating users including but not limited to: who they are (user demographics), where they come from, how long and where they stay, and overnight stay locations and accommodations type during a paddling tour.
- Developed a thorough research instrument and methodology applicable for the 2008 work and which could be confidently applied to all subsequent Lake Tahoe non-motorized boating research. The research design and execution was intended to provide accurate and defensible baseline data.
- Gathered and reviewed all information sources that could be useful for the design of the 2008 paddle sport season research;
- Included elements that may allow for comparison to general population recreation research findings within the Lake Tahoe Basin including but not limited to national paddle sport trends, State of California, USFS Tahoe Basin Management Unit (LTBMU), TRPA, and other associated recreation user research;
- Ascertained non-motorized boating recreation use patterns, preferences, and frequencies including but not limited to: size of recreation group (number of persons), length of time on the water during current outing, number

of stops during current outing, put-in and take-out locations and length of stay for party and vehicle at these locations, length of total trip (multi-day) number of days paddling during the current boating season; estimated participation costs, and finally level of expertise – rented boat versus owned boat, etc.

- Determined underlying motivations and the perceptions of users toward non-motorized boating on Lake Tahoe including user information sources, recognition of site ownership (public versus private, designated versus undesignated), and suggested facility improvements and additions, with specific attention to user expectations of facilities and the relative importance of reasons for paddling at the Lake.
- Assessed and presented study findings with respect to their implications for non-motorized boating recreation planning on Lake Tahoe.

Scope of Work

The following is a detailed scope of work that was initiated for fielding during the 2008 non-motorized boating and paddle sport recreation season. The project involved six specific tasks. They were:

- 1) Project scoping and research review
- 2) Survey design and sampling plan
- 3) Field staff training and field test
- 4) Survey fielding
- 5) Analysis and preliminary findings
- 6) Draft and final presentations and reports

Task 1: Project Scoping and Background Review

The consulting team reviewed pertinent recreation survey data, useful paddle sport research from other locations, as well as any and all associated background research regarding their application to the study of non-motorized boating use patterns on the Lake Tahoe. We integrated pertinent data collection approaches into design of the survey instrument. We utilized this information in concert with NMBWG input to “fine tune” survey design and the research approach.

Task 2.1 Draft Survey Review and Final Design

After the initial project scoping we provided a draft instrument for further review of NMBWG. Other elements of this task included coding of all survey instruments and development of fielding methodology. In addition we integrated all emerging issues identified in NMBWG meetings.

After presentation of the draft questionnaire to NMBWG we incorporated comments and suggestions into a revised questionnaire. Survey design included but was not limited to the following issues: user residence of origin, non-motorized boating patterns on Lake Tahoe, activity participation patterns, user demographic profile, and facility and site perceptions and suggestions.

Chuck Nozicka Consulting and the University of Nevada Reno, Department of Resource Economics in cooperation with NMBWG designed the final survey for the recreation research task. The final design provided an accurate and defensible baseline data collection approach.

Task 2.2 Draft Sampling Plan Review and Final Plan

We provided an initial sampling plan for NMBWG review. The final sampling plan included intercept locations,

weekday/weekend data collection, fielding team schedules and the number of usable returns collected at each identified survey site.

Survey Sites 2008

Intercept Northern Loop	Agency/Manager
Sand Harbor	Nevada State Parks
IVGID Beaches (Ski/Incline Beach, Burnt Cedar beach)	Incline Village General Improvement District
Kings Beach SRA	North Tahoe Public Utility District
Tahoe Vista Recreation Area / Sandy beach & boat ramp	North Tahoe Public Utility District
Carnelian Bay Sites	California Tahoe Conservancy
Lake Forest Beach and Boat Ramp	Tahoe City Public Utility District
Commons Beach	Tahoe City Public Utility District
William Kent Day Use	US Forest Service
Kaspian Day Use	US Forest Service
Intercept Southern Loop	Agency/Manager
Cave Rock	Nevada State Parks
Round Hill Pines	US Forest Service
Nevada Beach	US Forest Service
El Dorado Beach	City of South Lake Tahoe
Reagan Beach	
Baldwin and Pope Beaches	US Forest Service
Bliss State Park	California State Parks
Meeks Bay Resort	US Forest Service
Other	Agency/Manager
Web/Hand-out	NMBWG

Task 3.1 Recruit and Train Fielding Staff

The research team provided training of fielding staff. The consulting team conducted an on-site fielding training session, provided materials and supervised fielding activities. Fielding staff was comprised of graduate and under graduate students in the Department of Resource Economics at the University of Nevada Reno under the supervision of Professor Klaus Moeltner, PhD.

Task 3.2 Survey Field Test and Review

Upon development of the final draft questionnaire, the research team conducted a field test for each instrument. Any useful modifications were incorporated into a refined final questionnaire. Field-testing included the self-administered intercept questionnaire.

Task 4.1 Data Collection

We supervised the data collection process and reviewed all fielding results including gathered completions. The completed surveys were reviewed each day to ensure a representative sample of usable returns. In order to increase intercept response efficiency, a prize drawing (i.e., new kayak) was used, with that prize provided via a random drawing of respondent on a sign-up sheet separate from the questionnaire to ensure confidentiality of survey results. The prize drawing was generously provided by the Lake Tahoe Lake Front Home Owners Association.

Task 5.1 Survey Data Entry and Analysis

The Team input raw data from all usable returns, conducted analysis using an up-to-date statistical software package (Statistical Package for the Social Sciences SPSS 17.0), and produced an initial run of frequencies for each question. Upon review of this analysis we provided adjustments to ensure a clean accurate data set. All appropriate cross tabulations and breakouts were then conducted.

Task 5.2 Present Preliminary Findings

We produced a summary presentation of preliminary findings with graphic and tabular representation. A presentation of these findings was made to NMBWG and identified interested participants in December 2008, within a question/answer and discussion workshop setting. Input was used to conduct additional analysis and to refine the final planning document.

Number of Respondents by Intercept Site

Intercept Northern Loop	Completed Surveys
Sand Harbor	127
IVGID Beaches (Ski/Incline Beach, Burnt Cedar beach)	0
Kings Beach SRA	42
Tahoe Vista Recreation Area	
Sandy beach & boat ramp	16
Carnelian Bay Sites	12
Lake Forest Beach and Boat Ramp	1
Commons Beach	4
William Kent Day Use	1
Kaspian Day Use	1
Intercept Southern Loop	Completed Surveys
Cave Rock	0
Round Hill Pines	0
Nevada Beach	4
El Dorado Beach (SLT Rec Area to Reagan Beach)	5
Baldwin and Pope Beaches	94
Bliss State Park	0
Meeks Bay Resort	43
Other	Completed Surveys
Web/Hand-out/Dispersed Sites	137
TOTAL	488

Task 6.1 Presentation of Findings

We made a final presentation of study findings including associated conclusions and recommendations for Water Trial planning and development in April 2009. The presentation focused on graphical presentation of primary study findings, provided for comment and discussion and allowed the consultant to answer any and all pertinent questions.

Task 6.2 Final Report

Comments and revisions from the preliminary findings review were incorporated into this final document. A narrative, accompanying each report element, was written in a clear, concise, easy to understand and non-technical format, allowing for easy review by NMBWG and identified associated participants. The report includes graphic and tabular information and provides a full review of all salient findings.

Research Limitations

Social science surveys with human subjects each have within the pertinent design and methodology limitations per timeframe, objectives, and budget. This survey is no different, accordingly the following research limitations should be considered as the results are reviewed.

- Peak season. The fielding work was primarily conducted during the peak months of July and August with a portion of the sample gathered during September 2008. As a result shoulder season use during autumn and spring as well as any winter paddle activity is not included in this report. However, the management issues in the Lake Tahoe Basin are largely associated with peak season use so the focus of this research is assumed to be accurate for the primary summer paddle sport season.
 - Public access sites. Intercept sampling was only conducted at approved public access sites. Accordingly paddler populations that limit their activity to private or otherwise restricted sites are not represented.
 - Dispersed use. In addition to private sites there may be public access sites that are not designated for boating use or which have no boating amenities and thus service a dispersed boating population. While the fielding team stopped at these sites if activity was observed, we did not target more remote dispersed sites.
 - Rental locations. A separate survey instrument was made available to concessionaires at boating rental locations, however responses at these locations were extremely low so the rental portion of the sample may be somewhat underrepresented. However, boaters that rented craft but used public put-in and take-out sites were included in the intercept sample.
 - Sample size for certain sub-analysis. A total sample size of 488 respondents allowed for analysis for all primary data points. However, certain multiple cross tabulations or breakouts may have produced individual samples that were too small for accurate fine-grained analysis. In some of these cases we discuss tendencies in the data rather than provide a numerical analysis.
 - Private campsites. Since there are no privately owned and operated lake shore private campsites and since we asked multi-day paddle respondents to consider this category, we cannot be certain how the respondent interpreted this variable. However, the category may include facilities operated on US Forest Service lands via a concessionaire (i.e., Camp Richardson Resort and Zephyr Cove) or Washoe Tribe Lands (Meeks Bay Resort) but that appear to be private commercial operations to the recreation user.
 - Emergent issues. Upon review of findings it is typical that primary research implies new yet unanswered questions. Survey data cannot anticipate all inquiry especially those of a primarily qualitative nature.
-

BOATER PROFILE



2. BOATER PROFILE

This section of the report outlines the demographic profile and visitor origin of non-motorized boaters surveyed during the summer and fall of 2008. Visitor accommodations are listed as well as the information sources used by boaters to find out about paddling on Lake Tahoe.

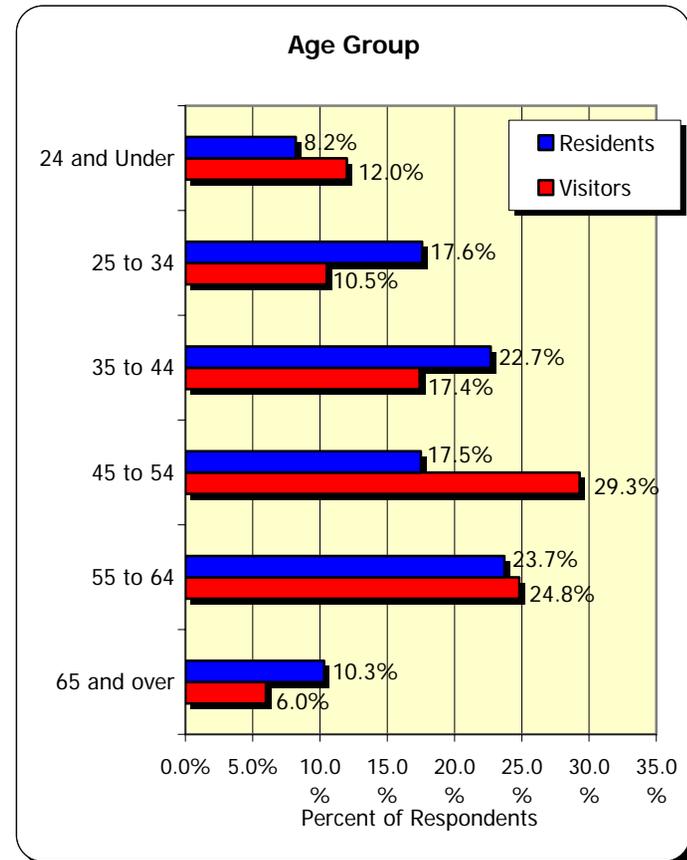
Demographics

Profiling demographic characteristics can yield insight into who is likely to paddle Lake Tahoe and indicates the most actionable communication sources for marketers and public policy information efforts.

Age Group

Considering data provided in the Project Context section, particularly for the Tahoe National Forest we find that the Lake Tahoe paddler has a somewhat older age profile with those in the mid-age groups predominant but augmented by a significant proportion of older (55 to 64) paddlers. This may reflect the participation of second home owners and semi-retired or retired paddlers as well as the cost of travel and lodging for those visiting the Basin. Comparisons by residence include the following:

- Resident paddlers tend to have a higher percentage of either younger or older boaters. Thus reflecting the attraction of a recreation oriented community to younger workers and the similar attraction for retirees.
- Visitor paddlers are slightly more likely to be from the upper range of mid-age groups or those in the prime earning years of the late 40s and early 50s.
- However, the average for both is nearly identical (*resident average: 45.9 years; visitor average: 45.5 years*).



Education and Income

These two demographic characteristics are usually closely associated, though in the case of recreation communities outdoor amenities can attract highly educated workers who are willing to forgo income for lifestyle. We see similar patterns for Lake Tahoe paddlers.

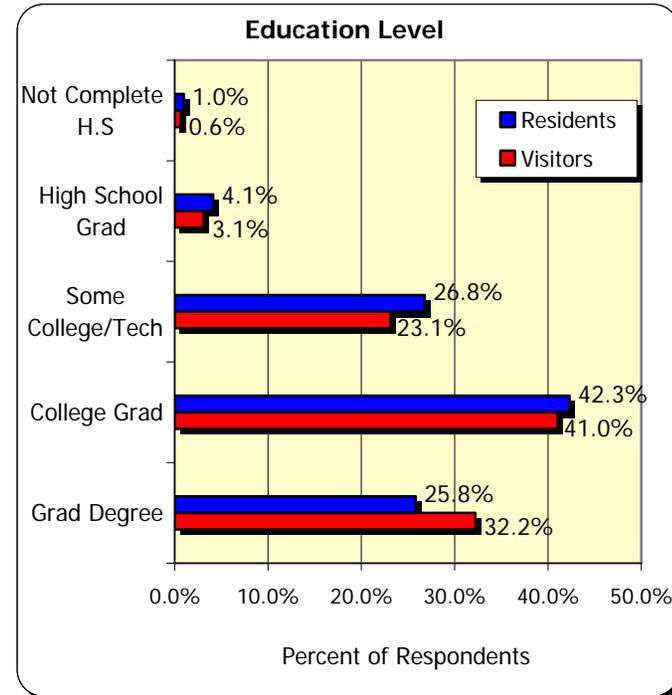
Overall, Lake Tahoe paddlers represent a very highly educated group, with the vast majority having at least some college or technical training and a combined majority having a college degree to graduate school education. Resident and visitor comparisons yield a slightly different profile:

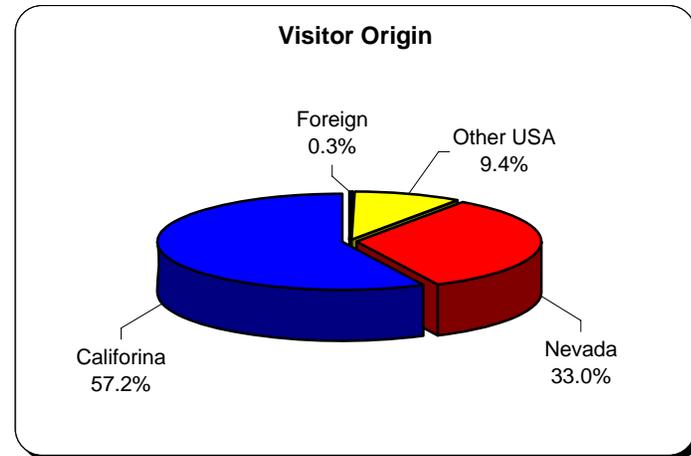
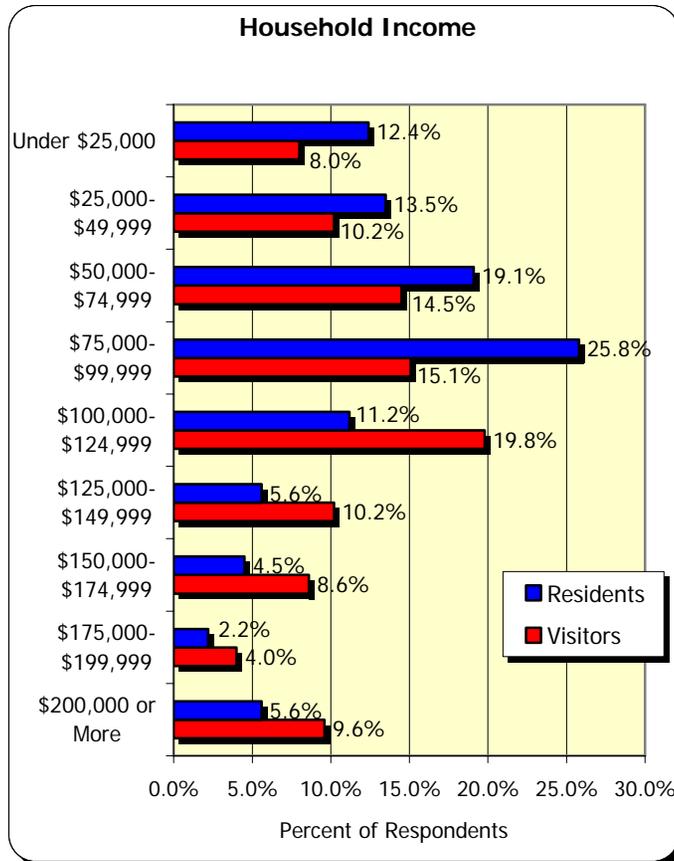
- Residents are more likely to be slightly less educated, though significantly more than two thirds have at least a college degree. Among those not participating in paddling, may be the many less educated and low income hospitality workers that are local residents primarily for job availability purposes.
- Visitors are the most educated group, with a very high proportion having advanced degrees.

These education data are somewhat reflected in income levels, with an interesting twist for resident paddlers, with the largest income category one step below the largest income category for visitors. Overall, we do see the relationship between education and income with the paddling community a relatively affluent group – only a minority have household incomes below \$50,000 per year. Additional comparisons yield the following:

- Resident paddlers, while having education levels approximating visitors, are nonetheless more likely to be from household with modest incomes. Combined with the education data, resident paddlers in part represent the recreation community pattern of well educated workers earning comparatively less in order to enjoy an alpine recreation lifestyle. A condition that an economist might call the “quality of life premium”.
- A higher percentage of visitors are represented in each of the highest income categories, with the majority (a

combined 52.2%) residing in households with annual incomes at \$100,000 or over.





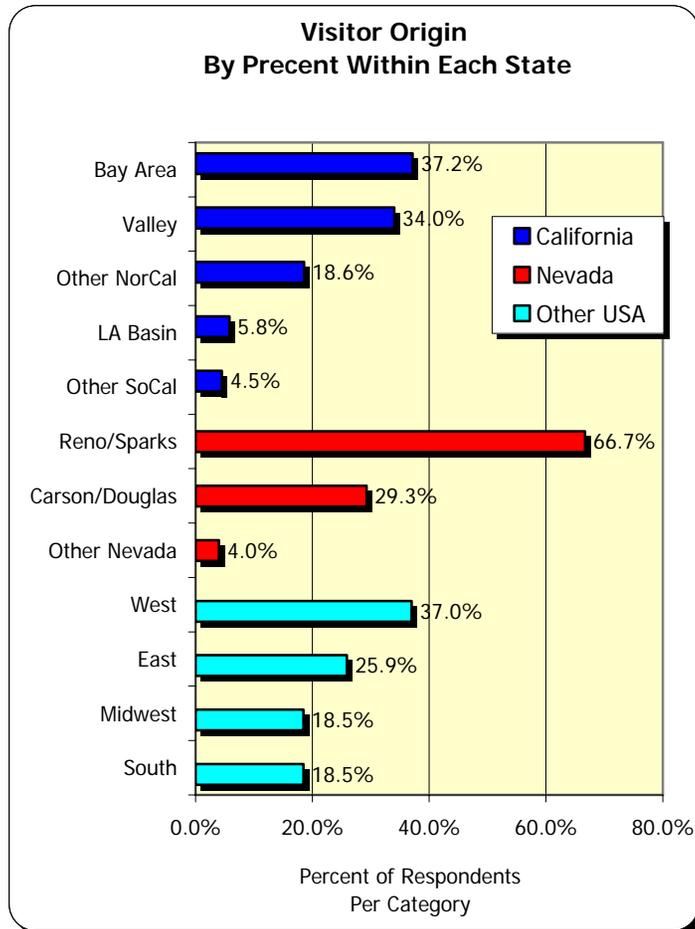
Visitor Origin

For paddling, as for visitation overall as demonstrated in previous studies, California and to a lesser extent Nevada provide the bulk of visitors. An additional 10% arrive from other US locations with a small portion arriving from other countries.

The predominance of California is not surprising given its large population and proximity of that population to Lake Tahoe. Nevada is well represented, with a fairly high proportion of paddlers when compared to previous studies on recreation visitation overall. Further analysis shows somewhat more fine grained results.

- Among those from California the vast majority arrive from either the San Francisco Bay Area or communities in the Central Valley region (a combined 71.2%), with an additional portion arriving from other Northern California communities. Given proximity and boat transportation requirements these are not surprising findings and are not out of line when one reviews other visitor origin information for activities such as skiing.
- Southern California provides about 10% visiting of paddlers, which is a respectable proportion and a tribute to the quality of the scenic setting and paddling opportunities on Lake Tahoe.

- Not surprisingly, almost all of Nevada’s paddlers arrive from the state’s northern most communities, especially those nearest Lake Tahoe.
- Paddlers from other states are most likely to travel from other western states, though the popularity of paddling in the eastern U.S. is also reflected in the numbers.



Visit Characteristics

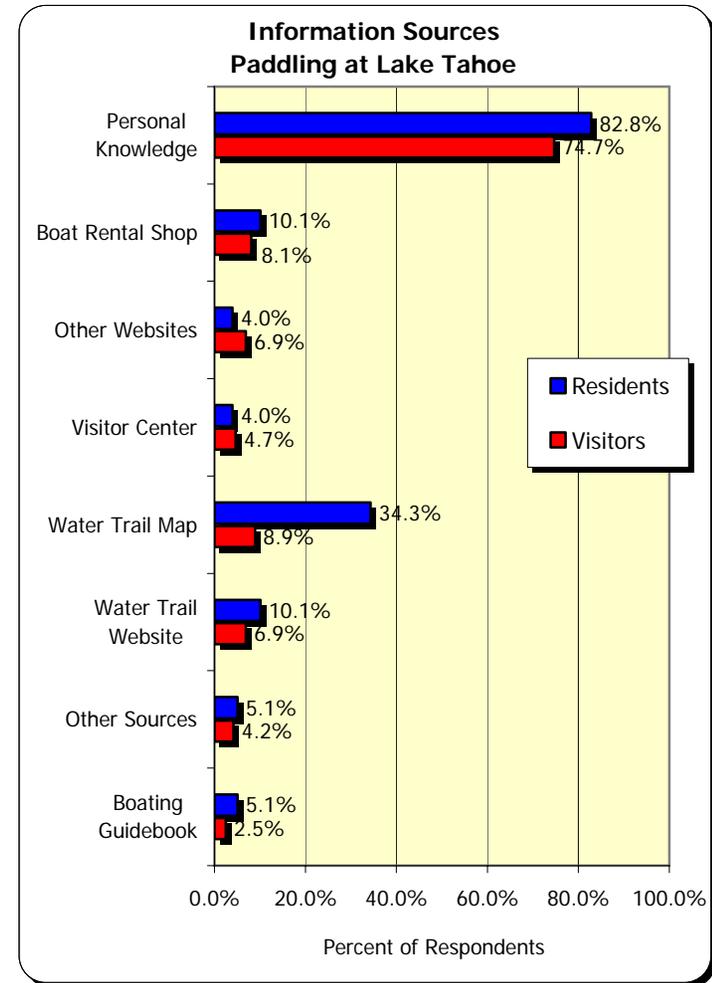
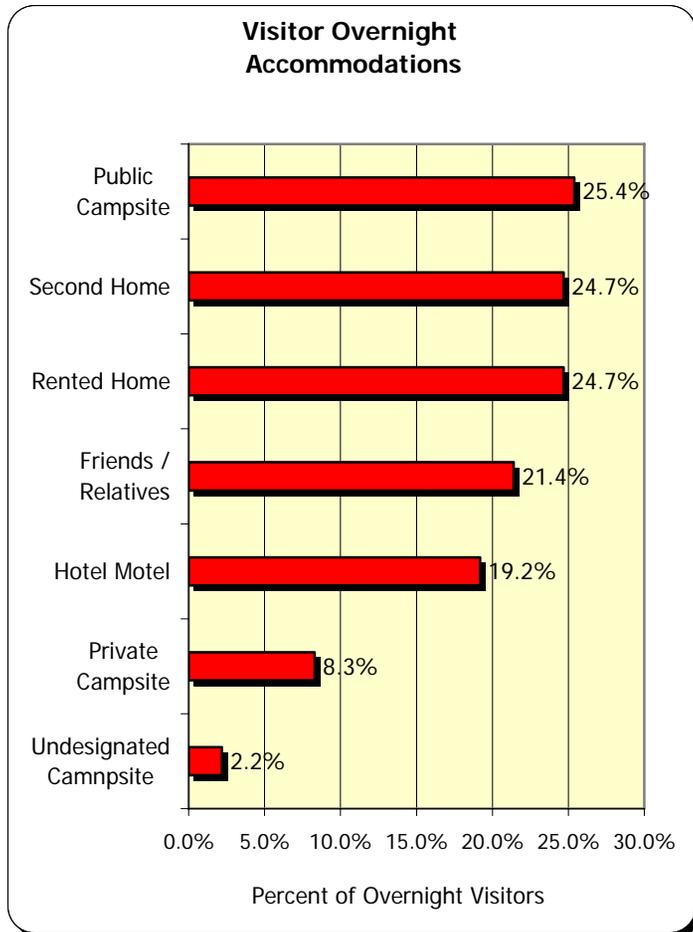
When asked if paddling was the primary reason for visiting Lake Tahoe, the response depends on whether the visitor is taking a day trip or staying overnight. Day visitors were more than twice as likely to say that they traveled to Lake Tahoe primarily to paddle. Overnight visitors indicated that they were visiting the Basin for other activities, among which paddling is included.

	Yes	No	All Visitors
Day Trip	66.10%	33.90%	35.90%
Overnight	26.80%	73.20%	64.10%
All Visitors	41.30%	58.70%	100%

Visitor Overnight Accommodations

For those visiting boaters that spend at least one night in Lake Tahoe, about half said that they stayed either at a second home or a rented home. However, note that the question allowed for multiple responses so some of those spending time in second or rented homes may also use other accommodations such as campgrounds or other lodging during a paddle trip. Multiple day paddles are investigated in greater detail in the next section.

Notice that one-quarter of overnight paddlers stay in public campgrounds, presumably near the water. This indicates that public land managers with campground operations should investigate the number of paddlers using their facilities and the ways in which boating oriented facilities can be improved upon or added. With only 19.2% using hotels or motels this data also indicates an opportunity for commercial properties that could target paddlers by providing either facilities for services such as boat storage or shuttles.



Information Sources

By far and away the most dominant information source for paddlers is personal knowledge or word of mouth. While this may reflect a tight knit paddling community, the data also indicates an opportunity to expand information on paddling overall.

Furthermore this represents an opportunity for those entities that want to attract increasing numbers of paddlers or who want to better inform paddlers who either already use or who plan to use the Lake Tahoe resource in the future. The only other noteworthy information source is the

Lake Tahoe Water Trail Map followed by the Water Trail Website, with both of these sources represented by a higher percentage of resident boaters. Finally, as might be expected rental shops also provide information though this is expected for boaters who rent rather than own their own water craft. Other information sources and websites used as mentioned by respondents include the following:

Other Information Sources

Misc. Sources	Other Web Sites
Local Paper	Google Earth
Brochure at Ice Cream shop	Google
Campsite	CA State Parks site
Flyer	Nevada State Park site
Magazines	LakeTahoe.com
Info in Books	TahoeKayak.com
Tahoe Map	TahoeAdventures.com
Visitors Guide	Ncka.org
Rented House info	Meeks Bay Resort site
Kayak Store	Various sites per Magazines
Other Maps	Squaw Valley site
My Kids	Website Search
	Emerald Bay Park site

Planning Implications

The boater profile has a range of implications for both planning for and communications with the non-motorized boating public, as follows:

- A somewhat older and better educated group than recreation consumers at-large, paddlers may be expected to observe conscientious stewardship behavior – or at least may be more prone to respond to communications about stewardship and perhaps respect regulations pertaining to the same. Since paddlers are literally immersed within the Lake Tahoe

- resource, active stewardship may be a natural proposition for these individual recreation users to adopt if they have not yet done so.
- For those entities that want to generate expenditures from the paddling community these data indicate that non-motorized boaters are an ideal targeted market. Lodging properties that provide boating facilities can capture a new market of well-heeled visitors, lake shore restaurants that want to attract paddlers could provide temporary boat storage or low docks, and those wanting to expand service such as shuttles could also target these users. Of course destination marketing organizations such as the Nevada tourism commission, Lake Tahoe area visitors authorities already have recognized the opportunity and are actively marketing to the paddling public.
- Likewise, since the bulk of paddlers arrive from within the Northern California and Nevada region, communications about stewardship and other issues such as access or public versus private lands may be accomplished through partnerships with other regional stakeholder organizations – many of whom are already participants in the non-motorized boating working group.
- Finally, there is considerable room for improvement in communications overall. Water route maps and mapping, and associated websites are only some of the ways that communication experts might be enjoined to increase paddle sport awareness among Lake Tahoe users.

BOATING PATTERNS

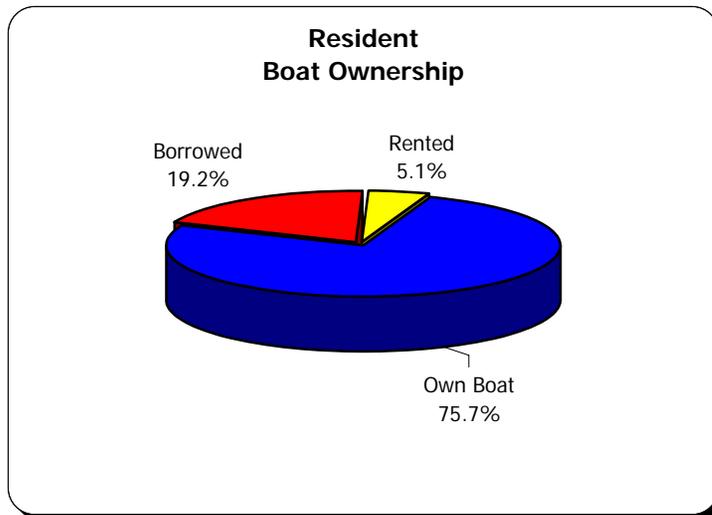


3. BOATING PATTERNS

This section reviews the primary findings and observations about non-motorized boating patterns at Lake Tahoe in 2008. First, we examine boat ownership (an indirect measure of expertise) and the type of water craft used. Then we look at paddle group and time use characteristics. Finally, a review of day paddle and multiple day paddle patterns is provided.

Boat Ownership

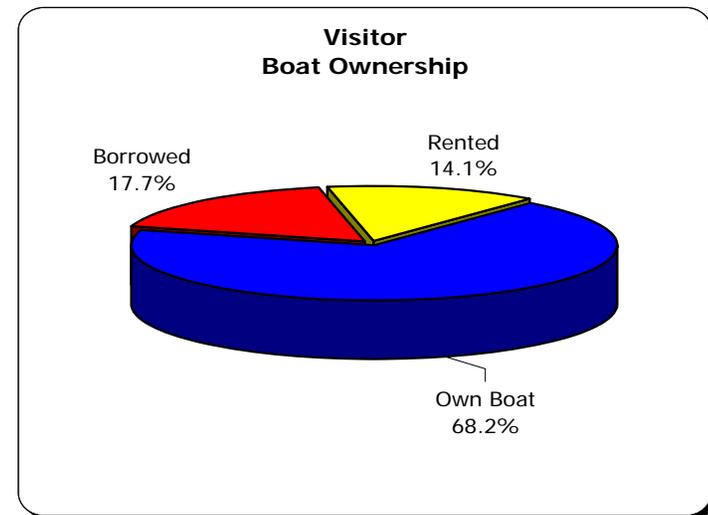
Paddlers surveyed at Lake Tahoe, whether residents or visitors, are a fairly experienced group when measuring expertise by boat ownership, with the vast majority reporting that they owned their non-motorized craft.



It should be noted however, that since sampling occurred at public lake access points and since the response from

boating concessionaires was lower than expected, some under-counting of boaters using rental craft may have occurred. However, since rentals also occur at public beaches and since we randomly sampled these sites the proportion of rental boats should not be significantly different. Accordingly resident and visitors differ in a few select ways:

- A larger percentage of residents own their boats. Given the assumptions about Lake Tahoe residents and the associated outdoor orientation of this population, we should not be surprised that a large percentage owns their craft. Also the noteworthy percentage of those with borrowed craft also makes sense here (neighborly borrowing), with just a small percentage of residents renting their boats.

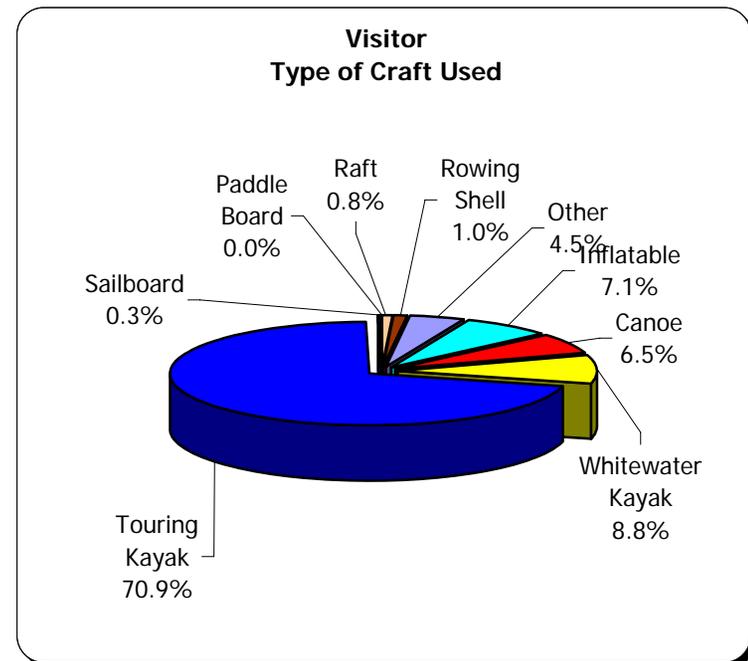
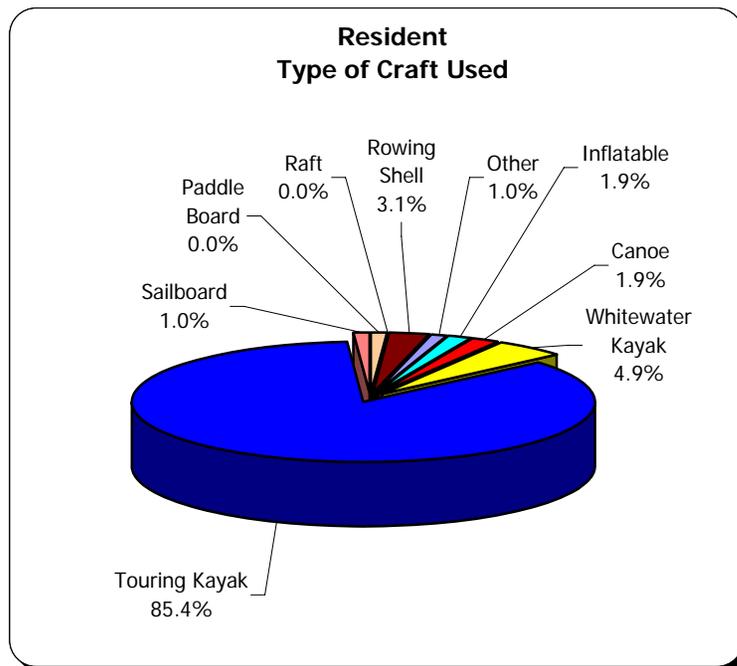


- While more than two thirds of visitors own their boats a noteworthy percentage, as expected, rented their water craft.

Type of Water Craft Used

Consistent with the overall boating trends discussed in the Introduction, we see that Lake Tahoe is primarily a destination for kayaking. While non-motorized boating in California statewide has rivers and ocean shore areas to use rafts and other inflatables, the Lake is well suited to touring kayaks and this is reflected in the data.

- Residents, given access to regular outdoor recreation, use purpose-built flat water boats that are ideal for Lake Tahoe paddling conditions.
- Visitors also have a great propensity to use touring kayaks though whitewater boaters often use these craft during a Lake Tahoe visit. Canoes and inflatables also represent a small but noticeable percentage.

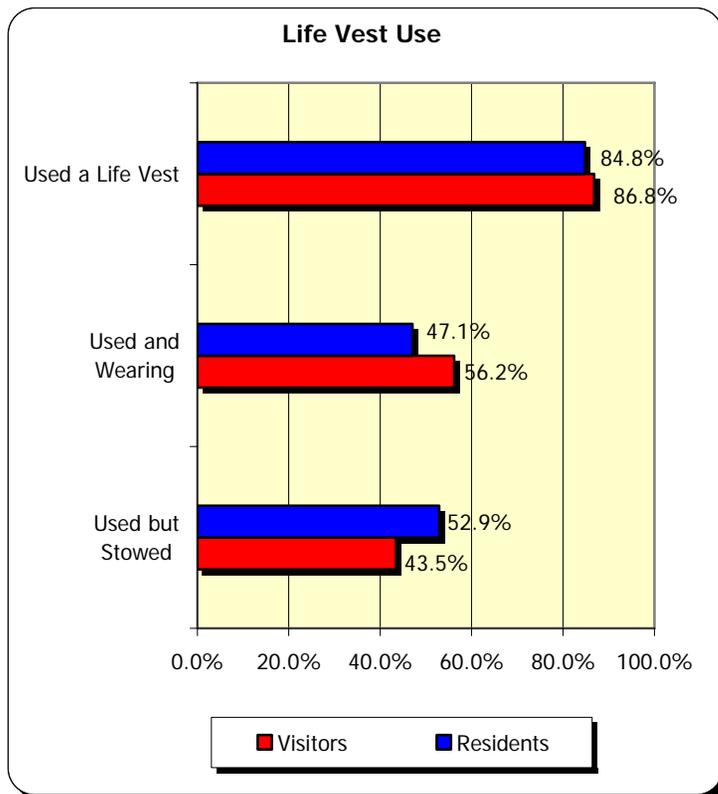


Keep mind that this information is a snapshot of non-motorized boating in 2008, so emergent boating trends such as paddle boards will probably see an increase over the next several years as that activity grows in popularity.

Boating Safety: Life Vest Use

The boating related agencies in California and Nevada (Department of Boating and Waterways, Nevada Department of Wildlife respectively) were interested in measuring the reported use of personal floatation / safety devices. As indicated, paddlers are fairly conscientious about using life vests, with the vast majority doing so.

However, among life vest users about half chose to stow or admitted in the survey, that they stowed their vest rather than wearing them. Interestingly younger boaters are least likely to use a life vest and male boaters are more likely to stow rather than wear their safety floatation devices. Reflecting risk taking in outdoor recreation activity as a whole, younger individuals and males are also assuming somewhat greater risk when paddling.



Life Vest Use By Age and Gender

	Life Vest Not Used	Life Vest Used
Average Age	36.2	46.9
	Used and Stowed	Used and Wearing
Male	52.40%	47.60%
Female	39.90%	60.10%

Paddling Outing Characteristics

In this sub-section several aspects of the paddling outing are presented including group and paddler characteristics, time spent during the paddle, and a profile of day versus multi-day paddles.

Paddling Group Characteristics

The majority of surveyed paddlers indicated that they were boating with other members of a group. Among both residents and visitors this was the case (72.7% and 72.4% respectively). Visitor paddle groups were more likely to have a person with special needs on their outing (5.5%) than resident paddle groups. Other comparisons include:

- Residents participated in non-motorized boating as part of smaller groups, with a 2.57 person average. Among these other paddlers, most were adults 18 years and over.
- Visitors boated in larger groups, presumably since those vacationing are often group oriented to begin with and/or have a propensity to recreate with others who have common interests. In any case the group size of 3.37 persons does include a larger proportion of children under 18 years old.

Respondent paddlers are assumed to represent the relative experience level of those boating on Lake Tahoe and as such demonstrate a remarkably seasoned group of boaters. This of course does not imply that all boaters on the Lake are this experienced, but that the primary responsible household adult has this level of experience. This does indicate that even if less experienced paddlers are on the outing, the household head or lead paddler has the expertise to at least supervise the less experienced boaters.

- Interestingly resident respondents reported fewer years in the sport. However, they make up for this with far more days paddling within the past year overall (21.9 days), with the bulk of these (17.6 days) on Lake Tahoe. Access is everything in outdoor sports.
- Visitor respondents while reporting more years in the sport paddled slightly more than half as many days within the past year (11.9 days). Of these outings slightly less than half were at Lake Tahoe indicating a focus on travel to the Lake for paddling purposes. Total visitation length to Lake Tahoe was similar to other recreation data collected elsewhere. Note that half of the reported visitation days included time on the water.

Paddling Group Characteristics

	Resident	Visitor
Percent W/ Other Paddlers	72.7%	72.4%
Percent W/ Special Needs Paddlers	1.3%	5.5%
18 or Older Not Paddling*	N/A	0.69
18 or Older Paddling*	1.17	1.69
17 and Under Not Paddling*	N/A	0.41
17 and Under Paddling*	0.4	0.68
Household Members Paddling Today	2.57	3.37

*Paddling During This Outing

Paddler Characteristics

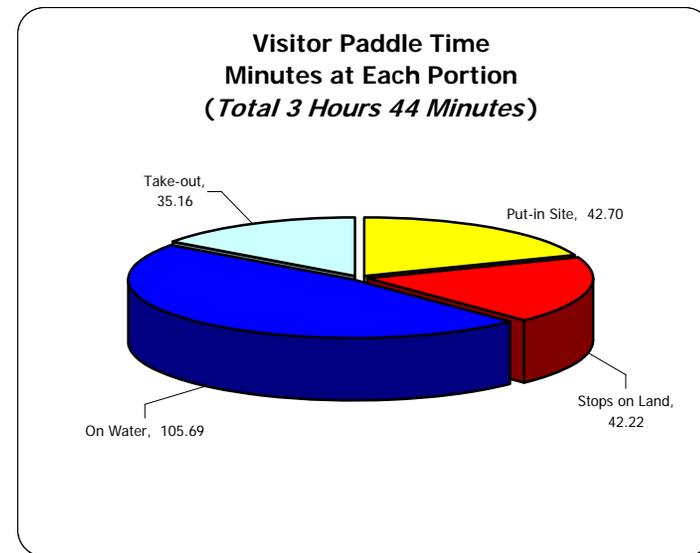
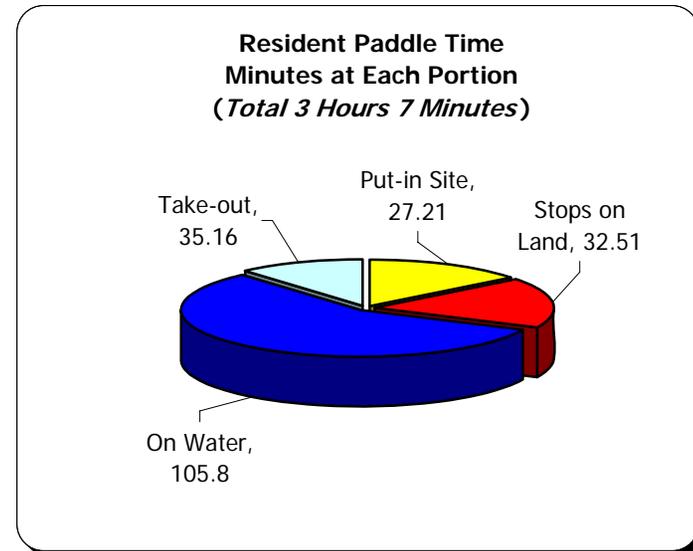
	Resident	Visitor
Years in Sport	8.6	11.1
Annual Days at Tahoe	17.6	5.5
Annual Days at Other	4.3	6.4
Number of Days This Trip to Lake Tahoe	N/A	7.97
Number of Days Paddling This Trip	N/A	3.82

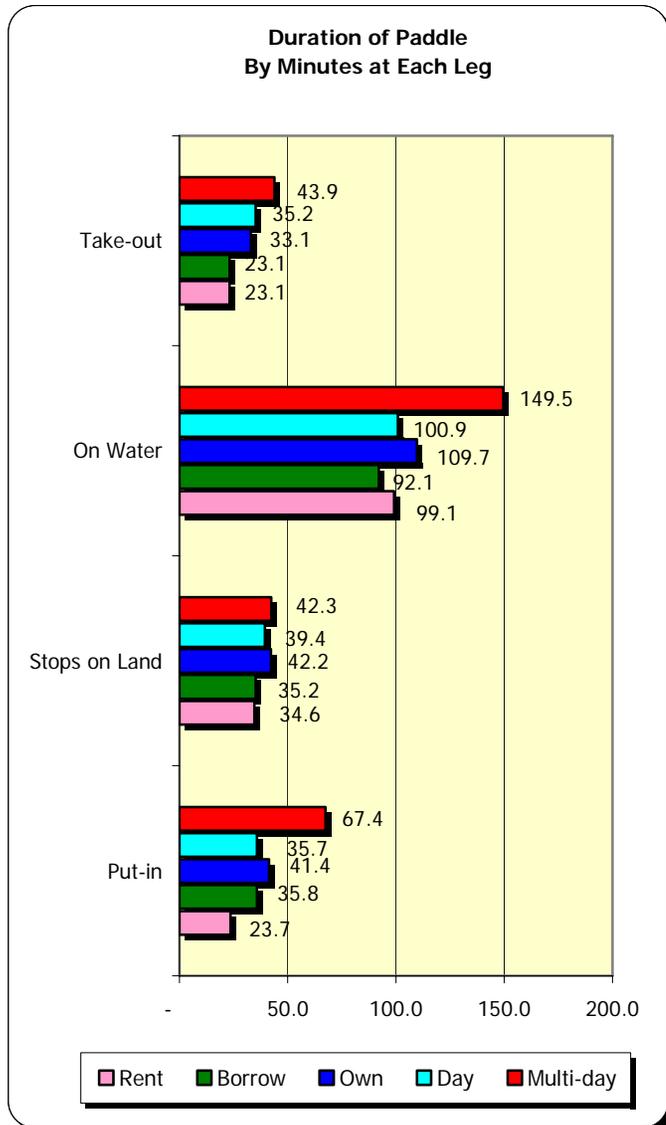
Time Spent During Paddle

Respondents were asked to estimate the total number of minutes for each leg of the day's paddle. As indicated in the findings, total outing length including put-in and take-out time was slightly over 3 hours for residents and closer to 4 hours for visitors.

Since visitors are spending time and money to travel to Lake Tahoe and paddle this would be expected. Residents, with easier access, are not motivated to use as much of the day on a paddle outing as possible – whether this is in the water or out. Of course we see similar patterns in the ski industry with residents often grabbing short hunks of time on a season pass to make turns at the local hill. Further examination yields the following:

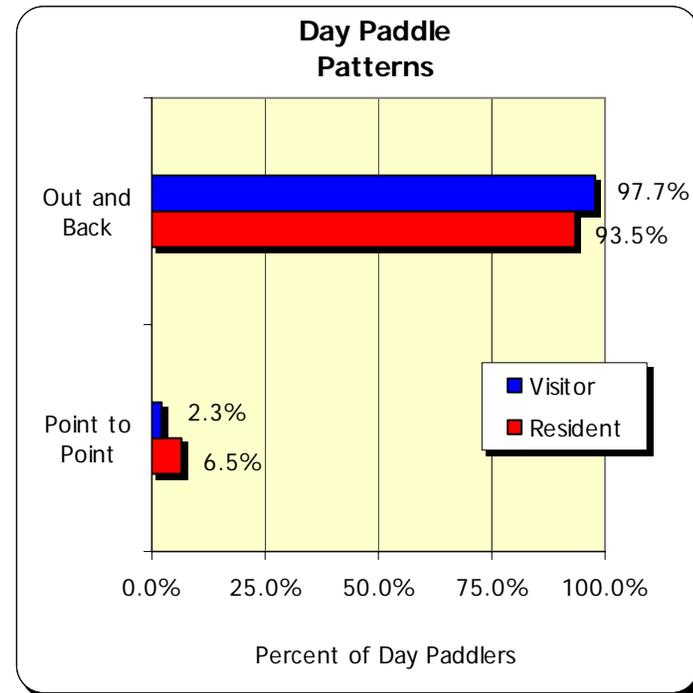
- While visitors spend more total time during the outing, residents *proportionally* spend more time paddling though actual water time is identical (residents 105.8 minutes; visitors 105.7 minutes).
- Visitors spend slightly more of their time at put-in, at stops on land, and at take-out locations, presumably because they have somewhat less familiarity with these access points when compared to residents and / or because their outing is taken at a more leisurely pace in general and the group (on average larger) wants to enjoy the total water and land paddling environment.
- This is spectacularly scenic Lake Tahoe and for the visitor, time on land putting-in, at rest stops, or taking-out may also be valued as recreation time.
- Finally, the chart on the following page shows the only apparent differences in outing time though numerous cross tabulations were considered. As indicated, multiple day paddles occupy more of the day than other outing types.





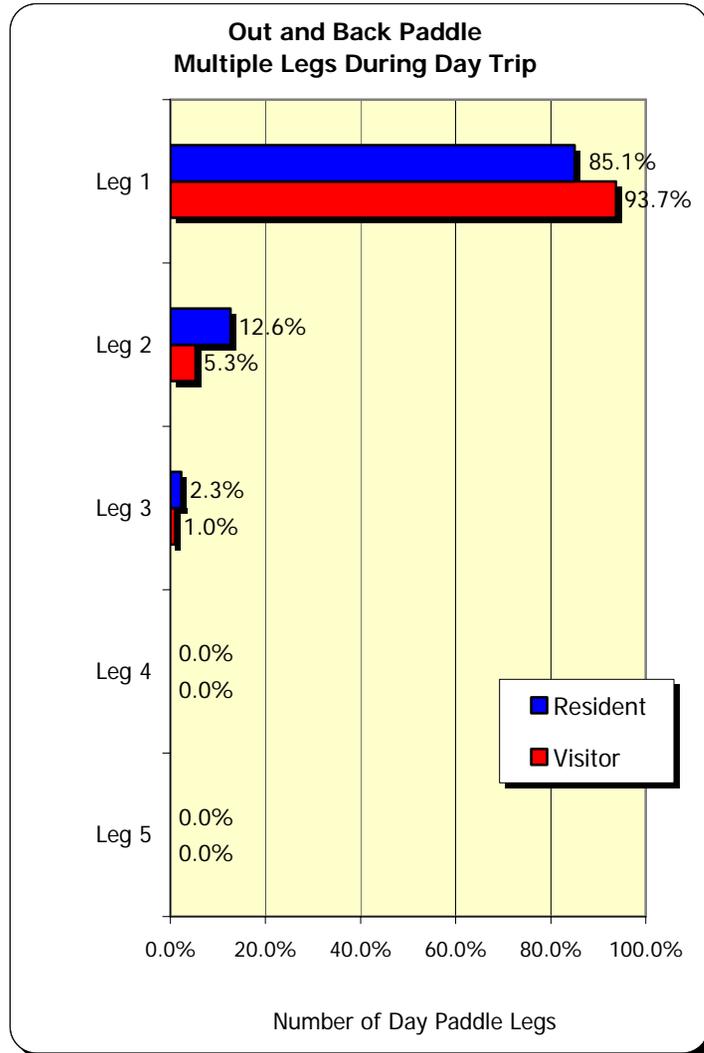
Day Paddle Patterns

The bulk of respondents took day paddles (94.8%), with the vast majority of these day paddlers taking an out and back loop trip from the put-in location and then returning to the same location. This does not include rest stops at other land based sites which can be part of the day tour loop trip, though few of these stops on land were listed.



- Only a small proportion of paddlers took point to point trips with shuttles or other pick-up assistance at the end point take-out location.
- Residents were slightly more likely to take a point to point day paddle presumably because arranging a shuttle or pick-up is easier for local paddlers.

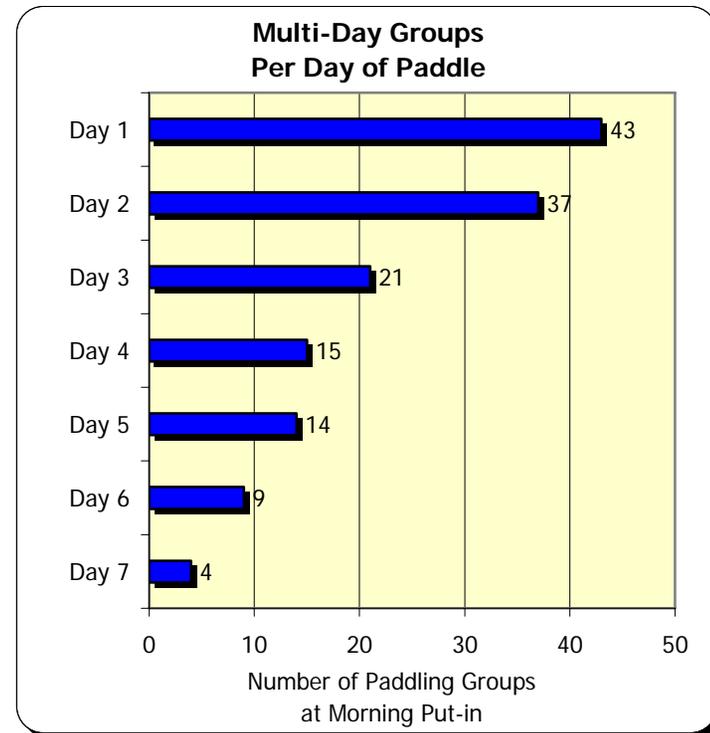
- The bulk of day trip paddlers simply paddled out and back to the put-in location though residents were somewhat more likely to list multiple trip legs.



Multiple Day Paddle Patterns

Overall, a very small percentage of respondents said that they or their group took multiple day paddles (5.2%). In fact the following charts list actual numbers of multiple day groups because, statistically speaking, percentages were less illustrative of this activity.

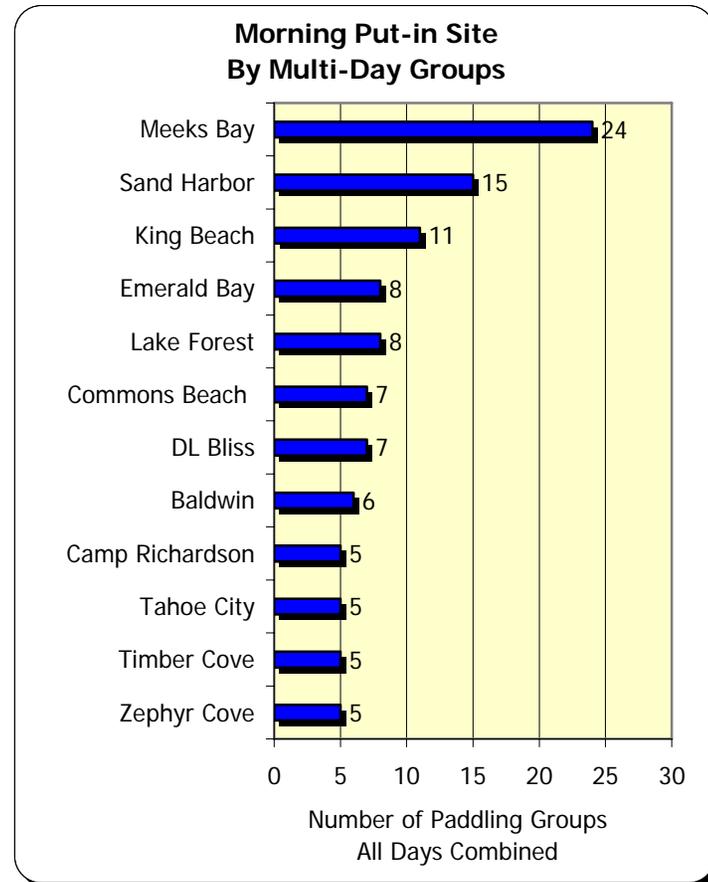
In addition, there was a significant drop off in participation as paddlers listed their morning put-in locations by day of the overall trip. Multiple day trips were relatively short, with only four groups taking week-long paddles.



Reflecting concentration of use at certain non-motorized boating sites (and associated intercept sampling returns) several morning put-in locations were mentioned above others as a preferred embarkation point for multiple day trips.

Among these sites, Meeks Bay, Sand Harbor, and Kings Beach were the most frequently listed multi-day morning put-in locations. In addition, also note that sites such as Meeks Bay, Camp Richardson, and Zephyr Cove are operated by concessionaires on public lands through agreements with public land managers. From the perspective of some users these may be considered “designated private” sites and as such the reader should keep this in mind for the following discussion about multiple day paddle accommodations.

Finally, these locations may, in part, also represent either overnight parking availability at or near the put-in site, camping or lodging availability during the trip and / or convenient locations for accessing services and supplies. Accordingly, each listed location does feature at least a limited amount of parking, accommodations, and support services.



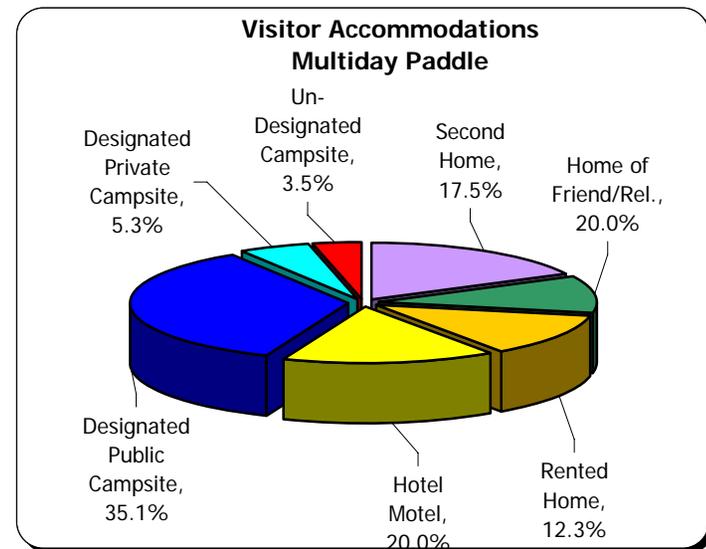
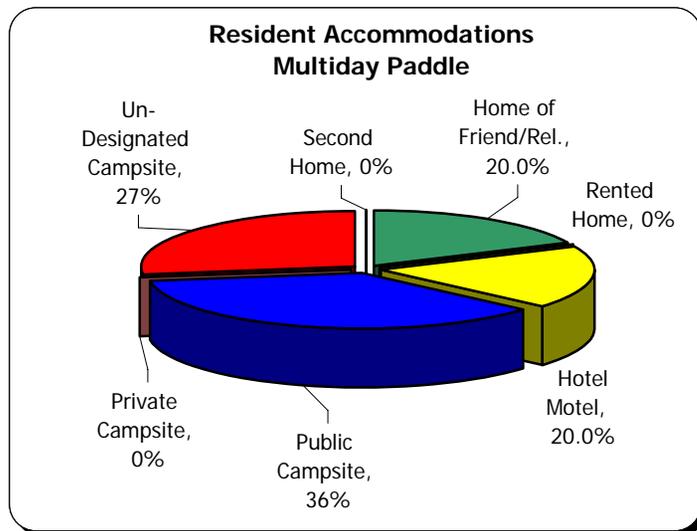
Multiple Day Paddle Accommodations

Following is a brief discussion of multiple day paddle trip overnight accommodations. However, keep in mind that these findings are based on very small numbers of respondents and as such the charts represent the *relative distribution* of overnight paddle groups by accommodations type and have limited statistical application.

The primary reason for asking about overnight accommodations during multiple day paddle trips was due to concerns about private property rights as well as unauthorized use of public lands for overnight camping (especially on East Shore public lands). Homeowners' representatives attending NMBWG meetings emphasized reported instances of overnight camping on private lake front property that included not only trespass but litter, fires, dog waste, and other negative impacts.

In order to avoid "leading" the respondent and to avoid an untruthful response to a direct question about private property violations we simply asked whether the paddle group stayed at an undesignated campsite. The data found:

- Approximately one-quarter of this small resident sample admitted using an undesignated campsite during multiple day trips (though these may also be the lands of acquaintances or friends as well as unauthorized public lands). This use represented 3 resident respondents out of 11 responses.
- Visitors were proportionally less likely to indicate use of an undesignated campsite with only 2 groups out of 40 doing so (3 out of 40 used designated private sites).
- Accordingly this appears to be a "town/gown" or resident vs. land owner conflict that requires robust internal community dialogue.



Planning Implications

Boater patterns have substantial implications for planning. Actual use patterns identified in the survey can inform facility managers about where and to what degree facility improvements may be needed, with patterns also helping identify potential use conflict areas. Implications include:

- With the majority of respondents indicating that the paddle outing was in fact a group outing, facilities and information can concentrate on providing amenities and information materials that can serve or educate more than one solitary paddler at a time. While solo paddles are taken by about one-quarter of the total the impact of groups on land side facilities is proportionally of greater impact simply by virtue of greater numbers concentrated in one beach location, campsite, or parking lot.
 - Since lead paddlers have a fairly high level of experience on the water, working with these individual boaters either through paddle community communications or in direct contact during law enforcement or other regulatory stops can help inform and educate other members of the group. If experienced paddlers can be educated about stewardship responsibilities their interaction with less experienced paddlers in their group can be a very efficient way to communicate respect of other boaters and private property rights.
 - The frequency of use by residents means that many user needs can be identified and potential conflicts resolved with active internal community dialogue and communications. To this end local newspapers and outdoor publications as well as boating establishments can help inform the local paddling public with efficient direct communication and provision of information materials at boating sites and boating establishments.
 - An already high proportion of paddlers use life vests, however, the usual suspects (young paddlers and males) may need additional prompting and if necessary a keener eye on the part of boating safety enforcement.
 - Time spent during the paddle likely also reflects patterns identified in the Introduction, visitors will probably concentrate their use during peak mid day hours while residents participate in the sport during other times of the day, very likely avoiding crowds in the process.
 - The predominance of day paddling means that day use facilities more so than overnight camping facilities will need improvements and additions. In particular parking and related boat accessible locations and their amenities will need monitoring for capacity and quality.
 - For those that do conduct multiple day paddles managers may need to address their land based amenities including parking (at initial put-in), secure boat docking, camping, and services including supplies.
 - Finally, concerns about the impact of overnight camping on private property appears to reflect a common “bad apple” phenomenon. Since camping on undesignated sites also includes those using unauthorized public lands this leaves a small surveyed incidence of use on private property. A few very bad experiences can reverberate through a community. This is not to undervalue the experience of those property owners who find trash and worse on the shoreline of their home. The sense of violations is real. However, it appears that is the problem not wide spread and interestingly may be a result of resident use as much as uninformed visitor paddlers. The paddling community needs to be aware of the potential for private property violation and communicate this in all maps and information materials. Fines and robust enforcement may likewise reverberate through the paddling community and limit this conflict.
-

BOATER PREFERENCES



4. BOATER PREFERENCES

The survey included two questions that were designed first, to obtain boater ratings of facilities; and second, to gain insight into why paddlers boat on Lake Tahoe. This section also includes a measure of boater awareness about the invasive species threat to Lake Tahoe. Finally, we asked visitors to estimate their paddling related expenditures during their trip to the Lake.

Facility Improvement Needs

We utilize negative experience ratings in this section to identify relative improvement needs, though these facility ratings (“very poor” or “disappointing” in the survey) represent a distinct minority of responses. Overall boaters are satisfied with the range of paddle facilities that are currently available, or are unaware of the facility development alternatives (e.g., low docks) that might be added to Lake Tahoe’s non-motorized boating infrastructure. The full range of responses is available in Appendix C of this report.

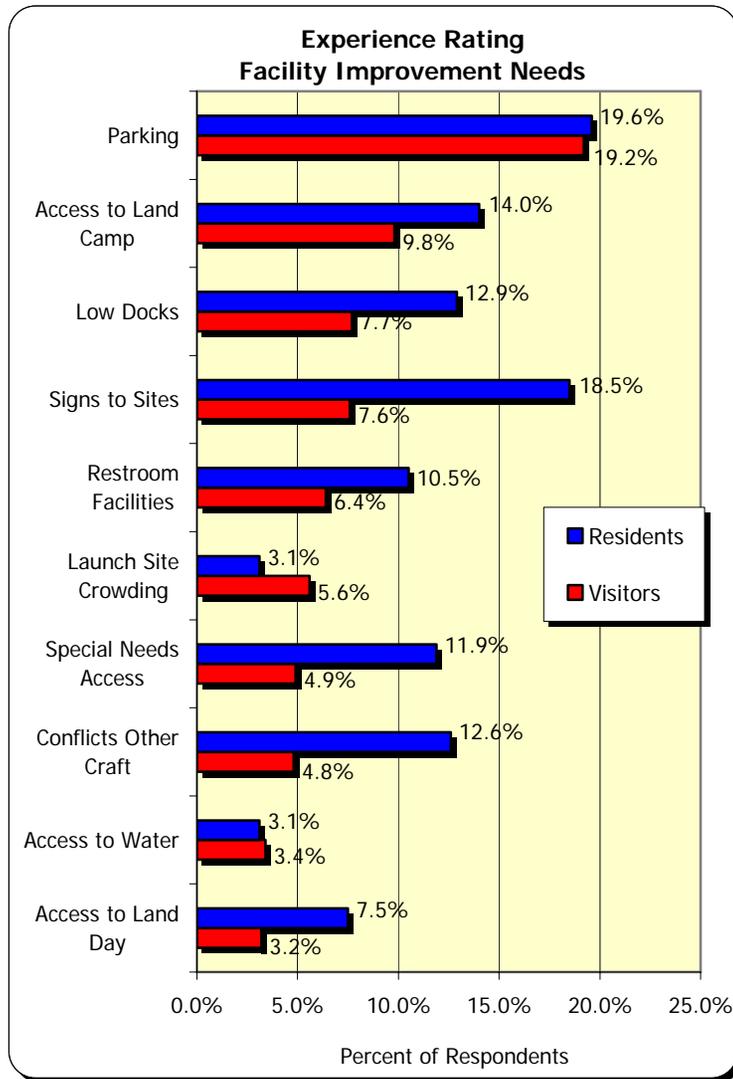
Overall, residents see greater needs than do visitors, a common finding since resident expectations of recreation communities are typically higher than visitors. Visitors are generally happy to be on a leisure trip while residents may feel overwhelmed by peak season activity. Accordingly, several distinct findings provide useful insight.

- Parking issues are equally frustrating to both residents and visitors. Given the heavy demands on both day use at lake shore sites for a full range of uses, and the need for boaters to unload then park their vehicles this is a particularly pressing facility issue.

- Residents are interestingly concerned about directional signage to sites. While we did not specifically ask whether this is from the land or water side we can assume it includes both. In addition, residents give lower ratings to land camp access, conflicts with other boaters, special needs access, and restroom facilities.
- Visitors while generally less concerned about facility issues are less pleased with land camping access, low docks for small boats, signs to boating sites (water and land side assumed) and restrooms. An example of a low dock facility (the wide dock only a few inches above the waterline), as featured at Sacramento State University Aquatic Center, is shown below.



Source: Sacramento State University, Aquatic Center, Web Site



Note: Complete Ratings Table in the Appendix

A more fine-grained analysis yields no dramatic statistical findings by user type, though we can observe tendencies in the data that may provide additional insights. In other words the identified users tend to see a greater need for improvements at selected facilities that others in the same boater category.

Experience Ratings Facility Improvement Needs*

Facility Type	Boater characteristic
Parking	Day user, small group, younger, boat owner
Access to camping	Multi-day, small group, older, more years boating
Low docks	Day user, small group
Signs to Sites	Small group, younger
Rest room facilities	Younger, more years boating, Boat owner
Launch site crowding	Smaller group, older
Special needs access	Day user
Conflicts with other craft	Smaller group
Access to water	Older
Access to day use	Older

* Observed Tendency in the Data

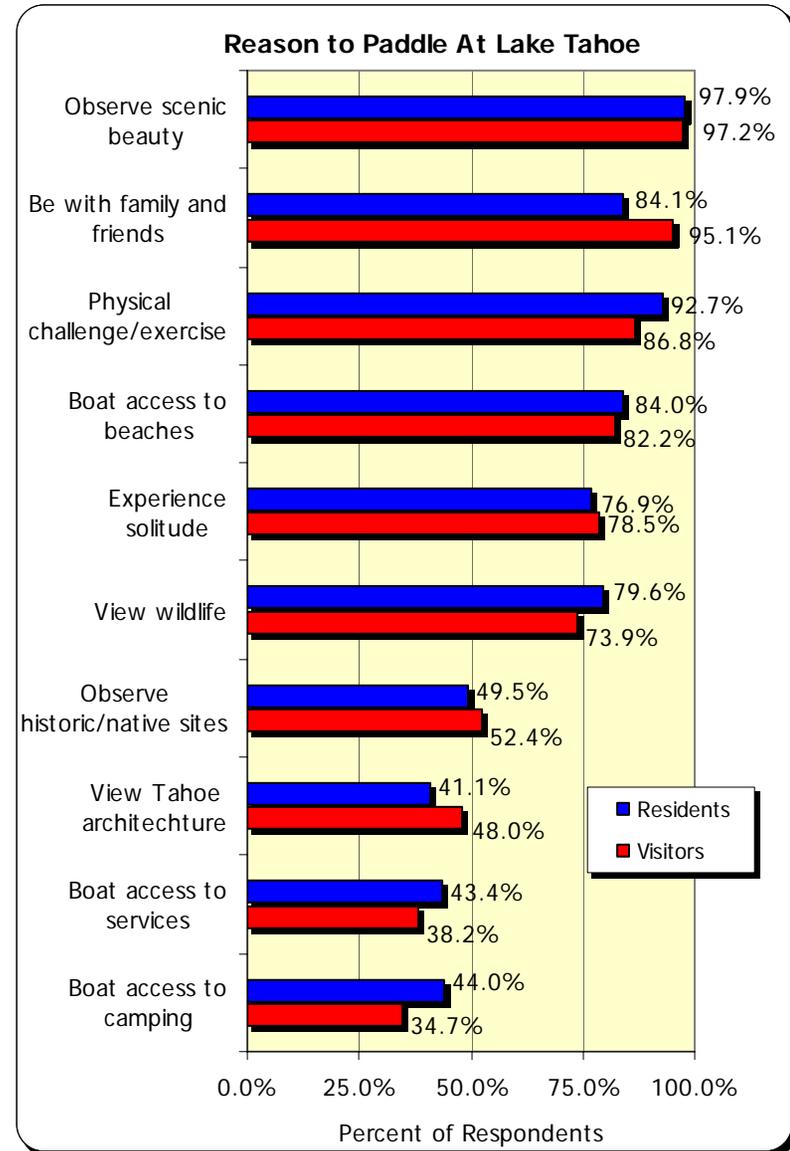
- Younger boaters are more concerned about parking and signs to sites.
- Older boaters are less happy with access issues (camping, water, and day use) and launch site crowding.
- Smaller paddling groups tend to give lower ratings to parking, camping access, low docks, signs to sites, launch site crowding, and conflicts with other craft.
- Boat owners and those with more experienced paddlers gave lower ratings to parking, access to camping, and restroom facilities.

Reason for Paddling Lake Tahoe

In an attempt to gain insight into why boaters participate in their sport at Lake Tahoe, and by association identify potential facility needs and other management issues, we asked boaters to rank the reasons for boating at the Lake.

First of all, there is surprisingly little difference between resident and visitor boaters and their motivations for paddling at Lake Tahoe. In nearly every category the statistical differences between resident and visitor attitudes about paddling the Lake are tiny. Similarly we could find no significant distinctions among other boating groups about their reason for paddling at the Lake.

- It should come as no surprise that scenic beauty is the most highly ranked reason to paddle at Lake Tahoe. A non boater can only imagine what it is like to immerse themselves in these blue waters and gaze at the surrounding alpine landscape.
- While access to camping was identified as needing improvement, camping access (and services) is the lowest ranked reason(s) to boat at Tahoe.
- Per the portion of those participating as part of a group, socializing is a primary motivation for paddling.
- Conversely, experiencing solitude is rated highly. However, as a NMBWG member stated in a review of these findings, one can boat with friend and in only a few paddle strokes experience quiet and solitude.
- The preference for physical challenge supports the implications that paddlers are a dedicated recreation user group and see fitness as a basis to engage in their sport.
- As a result, boat access to beaches is critical for these recreation users, who may need a rest stop and who may also see boating toward beach areas as part of the scenic experience.



Note: Complete Ratings Table in the Appendix

- Finally, viewing elements of the Lake Tahoe landscape (wildlife, historic sites, architecture) lends itself to completing the visual palette offered by a Tahoe paddle.

A deeper look at the data provides additional information that while not statistically dramatic may lend insight into paddler motivations. These observations include:

- Scenic beauty and access to beaches is equally important for all boaters.
- Interestingly, older boaters rate physical challenge, solitude and viewing wildlife as more important than their young counter parts.
- Experienced boaters seek time with others, physical challenge, wildlife viewing, and camping access; while the less experienced see services as more important.
- Large groups are more prone to give high scores to socializing and seeing historic sites.
- Multi-day paddlers want solitude, camping access, and viewing opportunities.

Reason to Paddle Lake Tahoe*

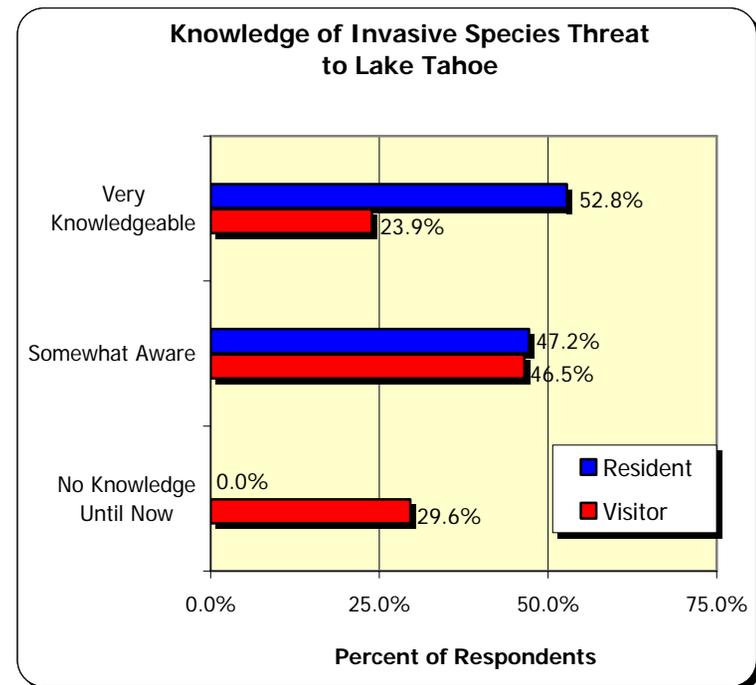
Reason	Boater characteristic
Observe scenic beauty	All similar
Be with friends family	Larger groups, more years boating
Physical challenge	Older, more years Boating
Boat access to beaches	All similar
Experience solitude	Multi-day, older
View wildlife	Multi-day, older, more years boating
Observe historic native site	Larger groups
View architecture	Multi-day, fewer years boating
Boat access to services	Day use, fewer years boating
Boat access to camping	Multi-day, more years boating

* Observed Tendency in the Data

Invasive Species Awareness

The threat of invasive species such as the Zebra and Quagga Mussels are a topic of critical concern at Lake Tahoe (as well as other water bodies throughout the United States). Once established, these creatures can cause great harm to an ecosystem especially one this sensitive and this unique. As a result an extensive program of boat inspection is planned for the Lake. To lend insight to that program, we measured boater awareness of the threat.

As indicated, residents are far more likely to know about or to at least have heard about the invasive species issue. This is not surprising in a community where terms like *coverage* are part of residents' every day dialogue.



However there is much room for improvement among both groups. Almost half of residents have only a basic awareness of the problem though none noted complete lack of knowledge. Visitors are another story, with more than one-quarter having no awareness and another half only somewhat aware. Clearly additional and more intensive educational efforts are needed in the Lake Tahoe boating community.

Previous and Next Paddling Locations

Related to the invasive species threat, is the likelihood that water craft have been in other waters and thus may have been exposed to invasive species. Of course, non-motorized water craft, by virtue of their design (e.g., no engine compartments or bilges), have an inherently lower risk of holding and transporting invasive species. However, considering this characteristic of boat design and the small percentage of boaters that have used other locations, enough boaters have paddled in outside waters that the threat for Lake Tahoe must be seriously considered by both resident and visitor boaters.

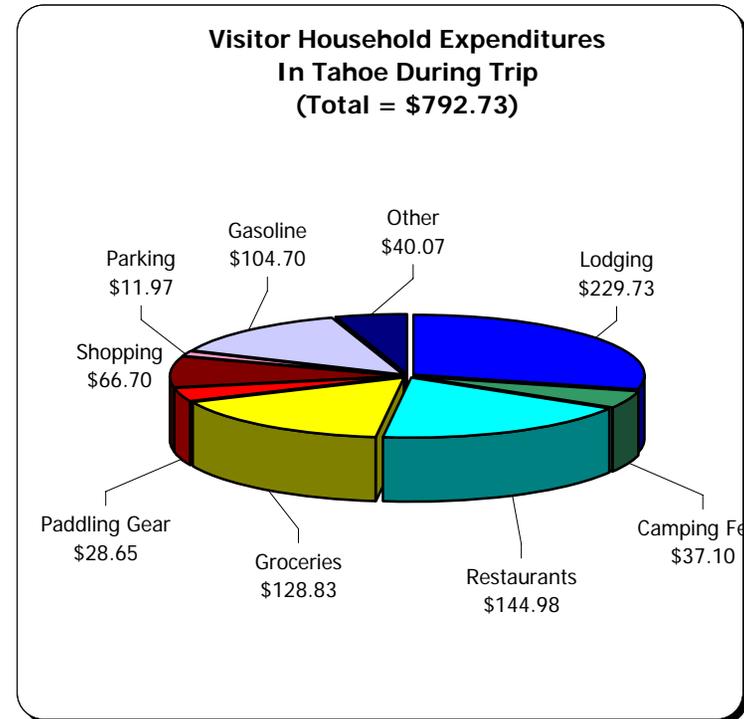
Other Paddling Locations

	Resident	Visitor
Other Location Last 5 Days	16.3%	18.1%
Other Location Next 5 Days	17.9%	15.3%

Visitor Expenditures

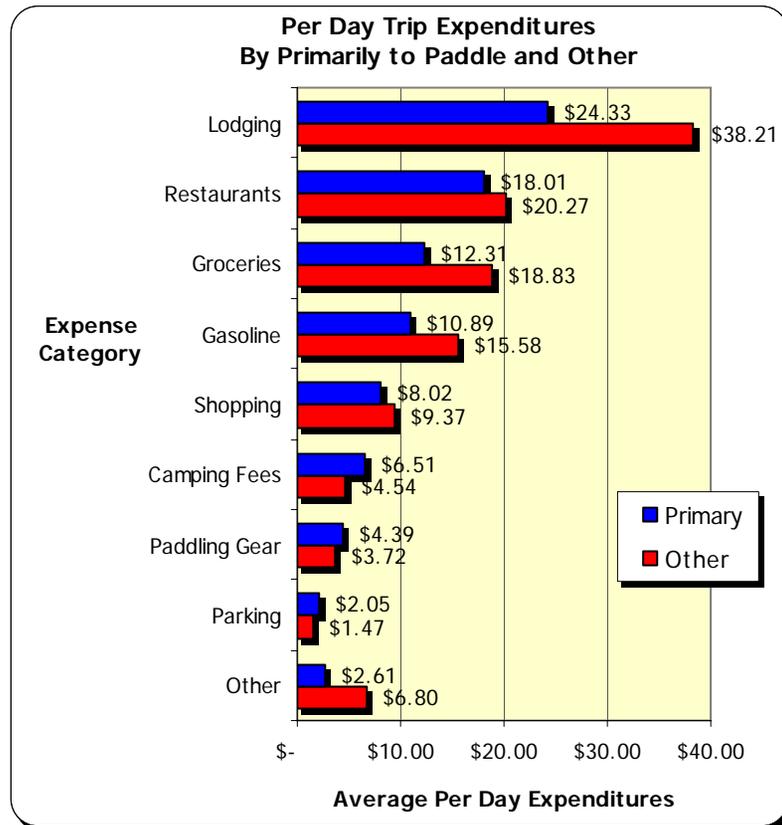
Paddling related expenditures reveal the potential economic benefit of this activity to Lake Tahoe communities. Here we show reported raw visitor expenditures related to their paddling trip to Lake Tahoe (high end outliers removed). Typically, reported expenditures are input into economic impact models to provide applicable direct and indirect

impact numbers. These raw numbers may very well be used in that capacity in the future. However, on their face, the respondent-reported expenditures indicate that paddling is of significant benefit to the Lake Tahoe region and is similar to other high economic impact destination recreation.



When applying the average visitor trip length of 7.97 days (including day trips) the trip total of \$792.73 yields an average daily household expenditure of \$99.46. Among those traveling to Lake Tahoe specifically to paddle, trip lengths (4.9 days) are shorter and thus household expenditures are somewhat less when compared to those traveling to Lake Tahoe for other reasons including paddling

(9.16 days). Accordingly, we can compare the relative economic impacts between visitors who arrive at Lake Tahoe primarily to paddle with others by looking at calculated per day expenditures. We find that paddling-focused visitors spend more than others for camping, paddling gear and parking, with an average overall daily household expenditure of \$89.12. Other visitor households spend more in the remaining categories, for a higher daily average of \$118.80.



Planning Implications

Boater preferences have numerous implications for planning policy and facility investment. Though stewardship has been discussed as a characteristic of the non-motorized boater population, serving recreational paddlers with improved facilities, services, and information will enhance any existing sense of stewardship in Lake Tahoe.

- Parking is related to access issues for boaters and is the primary negative issue affecting paddle sport at the Lake. Fortunately parking remains an issue for a range of other recreation users so the paddling community is in good company on this facility problem.
- Low docks for small craft are a very specific non-motorized infrastructure improvement that paddlers have identified.
- Since residents are more critical of facility conditions ongoing dialogue with local boaters can help facility managers stay ahead of emerging problem areas and can provide insight into details about specific facility needs and their locations.
- While identified by residents, improvements to directional signage may help alleviate auto congestion, crowding and inform travelers of alternative non-peak boating opportunities during their time at Tahoe.
- Invasive species issues are of critical concern and a problem that could threaten the native beauty paddlers seek. An intimate interest in the waters of Lake Tahoe itself and an associated stewardship interest indicate that paddlers should be a receptive audience for those addressing the invasive species issue.
- High income and thus high economic impact visitors can provide an important targeted market for those seeking to enhance the economic benefits of visitation to Tahoe.

APPENDICES



APPENDIX A: Questionnaires

RESIDENT

Dear Lake Tahoe Non-Motorized Boater,

The *Lake Tahoe Working Group* in collaboration with the *University of Nevada, Reno (UNR)*, is conducting a survey of non-motorized boaters (portable/hand carried water craft) to better plan for future recreation use. You can help our effort by filling out this brief questionnaire (about **10 minutes**). Your answers on this questionnaire are confidential and will provide us with information that is not available from any other source.

To express our appreciation for your help we are conducting a **PRIZE DRAWING** for a **BRAND NEW KAYAK** and **PERSONAL FLOATATION DEVICE!** If you would like to be eligible please provide your name and contact information at the end of this survey (your information will not be used for any other purposes).

Thank you for your help,
The Lake Tahoe Working Group and UNR

For simplicity, we will refer to any non-motorized boating activity as “paddling” throughout this survey.

► YOUR PADDLING ACTIVITIES

1. For how many years have you participated in paddling?
 _____ # years. This is my first year
2. Are there any other persons in your households (= people you live with) who occasionally go paddling?

 YES NO (please skip to #5)
3. Of these, how many are:

Age 18 or older: _____	Age 17 or younger: _____
------------------------	--------------------------
4. Including yourself, of the household members that occasionally go paddling, how many, if any, are paddlers with special needs (disabilities)?

 _____ # paddlers with special needs.

5. Counting today, how many days have you paddled at Lake Tahoe within the past 12 months?

	Total Days (please estimate)
--	------------------------------

6. How many days have you paddled at locations *other than Lake Tahoe* within the past 12 months.

	Total Days (please estimate)
--	------------------------------

7. Within the *last 5 days* of this outing have you paddled at any other locations than Lake Tahoe?

YES NO (please skip to #14)

8. Please list the location(s).

1)	3)	5)
2)	4)	6)

9. Within the *next 5 days* of this outing will you paddle at any other locations than Lake Tahoe?

YES NO (please skip to #16)

10. Please list the location(s).

1)	3)	5)
2)	4)	6)

11. What information sources do you use to find out about paddling at Lake Tahoe? (Please check all that apply)

<input type="checkbox"/> Water Trail Map	<input type="checkbox"/> Boating guidebook	<input type="checkbox"/> Boat rental shop
<input type="checkbox"/> Water Trail Website	<input type="checkbox"/> Visitor Center	<input type="checkbox"/> Personal knowledge/word of mouth
<input type="checkbox"/> Other Websites		
<input type="checkbox"/> Other Sources		

12. Is the watercraft you are using today...
 YOUR OWN BORROWED (friend, family)
 RENTED?

13. What type of watercraft is it?
 Whitewater Kayak Inflatable kayak Hardshell canoe
 Touring Kayak Inflatable raft Inflatable canoe
 Rowing shell Sailboard Paddle board
 Other watercraft _____

► THIS PADDLING OUTING: Details

14. How many household members (people you live with) are with you on this paddling outing?
 _____ # household members (if "zero", please skip to #16)

15. Of these, how many are

Age 18 or older: _____	Age 17 or younger: _____
------------------------	--------------------------

16. Is today's outing part of a multi-day paddling trail?
 YES NO (please skip to #20)

17. What is the total number of days for this multi-day trail? _____ days

18. For this multi-day trail, please list your beginning (put-in) points for each morning of the outing. (Please be as specific as possible, for example: Sand Harbor State Park; Commons Beach; Tahoe Vista Boat Ramp, etc.).

Morning Time Put-in Location	
Day # 1	Day # 6
Day # 2	Day # 7
Day # 3	Day # 8
Day # 4	Day # 9
Day # 5	Day # 10

19. In what type of accommodations are you spending the night on this multi-day paddling trail (please check all that apply)?

- Second Home Home of Friend/relative Rented Home Hotel/Motel
 Designated public campsite Designated private campsite Undesignated campsite

20. For today's outing, please list your planned or anticipated beginning (put-in) and end (take-out) points for each leg of the outing. (Please be as specific as possible, for example: Sand Harbor State Park; Commons Beach; Tahoe Vista Boat Ramp, etc.).

Put-in Location	Take-out Location
# 1	
# 2	
# 3	
# 4	
# 5	

21. What time of day did you put-in for today's outing?
 _____ o'clock (Please note whether the put-in is a.m. or p.m.)

22. During today's outing please estimate how much time you will spend during each portion of the outing? (Please note time at put-in, out on the water, stops on land during your paddle, and at the take-out)

Total time in Minutes (Please Estimate)	
Put-in site: _____ min	Stops on Land: _____ min
On the Water: _____ min	Take-Out site: _____ min

23. Are you using a personal floatation device (PFD, float vest, life jacket) for this outing?

- YES NO (please skip to #25)

24. Is your personal floatation device (PFD, float vest, life jacket)

- ON YOU (you are wearing it) Stowed in your craft?

25. Thinking about this outing, please rate each experience and facility attribute. (Please check one response for each)

	Not Applicable	Very Poor	Disappointing	Average	Very Good	Excellent
Wait / crowds at launch facilities	<input type="checkbox"/>					
Few conflicts with other craft	<input type="checkbox"/>					
Parking availability	<input type="checkbox"/>					
Restroom facilities	<input type="checkbox"/>					
Low docks for small craft	<input type="checkbox"/>					
Signs to boat sites	<input type="checkbox"/>					
Access to the water	<input type="checkbox"/>					
Access to land for day use	<input type="checkbox"/>					
Access to land for camping	<input type="checkbox"/>					
Access for persons with disabilities	<input type="checkbox"/>					

26. Everyone has a different set of reasons for paddling on Lake Tahoe. Thinking about the **purpose of this outing**, please **rate the importance** of these attributes. (Please check one response for each)

	Not at All Important	Somewhat Unimportant	Neutral	Somewhat Important	Very Important
Observe scenic beauty	<input type="checkbox"/>				
Boat access to services*	<input type="checkbox"/>				
Boat access to camping	<input type="checkbox"/>				
Boat access to beaches	<input type="checkbox"/>				
View wildlife	<input type="checkbox"/>				
View Tahoe architecture	<input type="checkbox"/>				
Experience solitude	<input type="checkbox"/>				
Be with friends/family	<input type="checkbox"/>				
Observe historic sites	<input type="checkbox"/>				
Physical challenge/exercise	<input type="checkbox"/>				

* Restaurants, shopping, entertainment

➤ INFORMATION ABOUT YOURSELF

Finally, we would like to know a bit more about you. Please remember that this information is anonymous, and will be used strictly for research purposes.

27. What is your gender? Male Female

28. What is your age? ____

29. Which of the following best describes your household (= the people you live with)?

<input type="checkbox"/> Single, no children (pl. skip to #11)	<input type="checkbox"/> Couple, no children	<input type="checkbox"/> Multiple adults, no children
<input type="checkbox"/> Single, with children	<input type="checkbox"/> Couple with children	<input type="checkbox"/> Multiple adults, with children

30. What was your total household income (*before taxes*) in **2007**?

- Under \$25,000
- \$25,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$124,999
- \$125,000 to \$149,999
- \$150,000 to 174,999
- \$175,000 to 199,999
- \$200,000 or more

31. What is the highest level of education that you have completed?

- Did not complete high school
- High school graduate
- Some college or technical training
- College graduate
- Graduate degree

32. Where is your primary place of residence?

- California city: _____ zip code: _____
- Nevada city: _____ zip code: _____
- Other USA (*Please specify state* _____)
- Other Nation not USA (*Please specify nation* _____)

33. What is the **single most important thing** that can be done **to improve non-motorized boating/paddling** on Lake Tahoe?

34. How knowledgeable are you about the threat of invasive species to Lake Tahoe, including the Zebra and Quagga Mussel?

- Very Knowledgeable
- Somewhat (I have heard about it)
- No Knowledge Until Now

VISITOR

Dear Lake Tahoe Non-Motorized Boater,

The Lake Tahoe Working Group in collaboration with the University of Nevada, Reno (UNR), is conducting a survey of non-motorized boaters (portable/hand carried water craft) to better plan for future recreation use. You can help our effort by filling out this brief questionnaire (about 10 minutes). Your answers on this questionnaire are confidential and will provide us with information that is not available from any other source.

To express our appreciation for your help we are conducting a **PRIZE DRAWING** for a **BRAND NEW KAYAK** and **PERSONAL FLOATATION DEVICE!** If you would like to be eligible please provide your name and contact information at the end of this survey (your information will not be used for any other purposes).

Thank you for your help,
The Lake Tahoe Working Group and UNR

For simplicity, we will refer to any non-motorized boating activity as "paddling" throughout this survey.

➤ **YOUR TRIP TO TAHOE: Some Basic Information**

1. Is today's visit to Lake Tahoe a Day trip (skip to #5) Part of a multiple-day overnight trip?
2. What is the total length of your multi-day trip to Tahoe? _____ days.
3. On how many of these days have you paddled / will you paddle? _____ days.
4. In what types of accommodation are you staying during this multi-day trip (please check all that apply)?

- | | | | |
|----------------------------|-----------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Second Home | Home of Friend/relative | Rented Home | Hotel/ Motel |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Designated public campsite | Designated private campsite | Undesignated campsite | |

5. Is paddling the primary reason for this trip to Tahoe?

YES NO

6. How many household members (people you live with) are with you on this trip to Lake Tahoe (paddling or not)?

_____ # household members (if "zero", please skip to #8)

7. Of these, how many are

Age 18 or older and <i>not</i> paddling on this trip: _____	Age 17 or younger and <i>not</i> paddling on this trip: _____
Age 18 or older and paddling on this trip: _____	Age 17 or younger and paddling on this trip: _____

8. Including yourself, of the household members that are here with you on this trip, how many, if any, are paddlers with special needs (disabilities)?

_____ # paddlers with special needs.

➤ **YOUR PADDLING ACTIVITIES**

9. For how many years have you participated in non-motorized watersports?

_____ # years. This is my first year

10. Counting today, how many days have you paddled at Lake Tahoe within the past 12 months?

	Total Days (please estimate)
--	------------------------------

11. How many days have you paddled at locations *other than Lake Tahoe* within the past 12 months.

	Total Days (please estimate)
--	------------------------------

12. Within the *last 5 days* of this outing have you paddled at any other locations than Lake Tahoe?

YES NO (please skip to #14)

13. Please list the location(s).

1)	3)	5)
2)	4)	6)

14. Within the *next 5 days* of this outing will you paddle at any other locations than Lake Tahoe?

- YES NO (please skip to #16)

15. Please list the location(s).

1)	3)	5)
2)	4)	6)

16. What information sources did you use to find out about paddling at Lake Tahoe?
(Please check all that apply)

<input type="checkbox"/> Water Trail Map	<input type="checkbox"/> Boating guidebook	<input type="checkbox"/> Boat rental shop
<input type="checkbox"/> Water Trail Website	<input type="checkbox"/> Visitor Center	<input type="checkbox"/> Personal knowledge/word of mouth
<input type="checkbox"/> Other Websites		
<input type="checkbox"/> Other Sources		

17. Is your watercraft

- YOUR OWN BORROWED (friend, family) RENTED?

18. What type of watercraft is it?

- | | | |
|---|---|---|
| <input type="checkbox"/> Whitewater Kayak | <input type="checkbox"/> Inflatable kayak | <input type="checkbox"/> Hardshell canoe |
| <input type="checkbox"/> Touring Kayak | <input type="checkbox"/> Inflatable raft | <input type="checkbox"/> Inflatable canoe |
| <input type="checkbox"/> Rowing shell | <input type="checkbox"/> Sailboard | <input type="checkbox"/> Paddle board |
| <input type="checkbox"/> Other watercraft | | |

➤ THIS PADDLING OUTING: Details

19. How many *household members* (people you live with) are with you on this paddling outing?

_____ # household members (if "zero", please skip to #21)

20. Of these, how many are

Age 18 or older: _____	Age 17 or younger: _____
------------------------	--------------------------

21. Is today's outing part of a *multi-day paddling trail* ?

- YES NO (please skip to #25)

22. What is the total number of days for this multi-day trail? _____ days

23. For this multi-day trail, please list your beginning (put-in) points **for each morning of the outing**. (Please be as specific as possible, for example: Sand Harbor State Park; Commons Beach; Tahoe Vista Boat Ramp, etc.).

Morning Time Put-in Location	
Day # 1	Day # 6
Day # 2	Day # 7
Day # 3	Day # 8
Day # 4	Day # 9
Day # 5	Day # 10

24. In what type of accommodations are you spending the night on this multi-day paddling trail (please check all that apply)?

- | | | | |
|---|--|--|--------------------------------------|
| <input type="checkbox"/> Second Home | <input type="checkbox"/> Home of Friend/relative | <input type="checkbox"/> Rented Home | <input type="checkbox"/> Hotel/Motel |
| <input type="checkbox"/> Designated public campsite | <input type="checkbox"/> Designated private campsite | <input type="checkbox"/> Undesignated campsite | |

25. For **today's outing**, please list your *planned or anticipated* beginning (put-in) and end (take-out) points **for each leg of the outing**. (Please be as specific as possible, for example: Sand Harbor State Park; Commons Beach; Tahoe Vista Boat Ramp, etc.).

Put-in Location	Take-out Location
# 1	
# 2	
# 3	
# 4	
# 5	

26. What time of day did you put-in for today's outing?
 _____ o'clock (Please note whether the put-in is a.m. or p.m.)

27. During *today's outing* please estimate how much time you will spend during each portion of the outing? (Please note time at put-in, out on the water, stops on land during your paddle, and at the take-out)

Total time in Minutes (Please Estimate)	
Put-in site: _____ min	Stops on Land: _____ min
On the Water: _____ min	Take-Out site: _____ min

28. Are you using a personal floatation device (PFD, float vest, life jacket) for this outing?

YES NO (please skip to #30)

29. Is your personal floatation device (PFD, float vest, life jacket)

ON YOU (you are wearing it) Stowed in your craft?

30. Thinking about this outing, please rate each experience and facility attribute. (Please check one response for each)

	Not Applicable	Very Poor	Disappointing	Average	Very Good	Excellent
Wait / crowds at launch facilities	<input type="checkbox"/>					
Few conflicts with other craft	<input type="checkbox"/>					
Parking availability	<input type="checkbox"/>					
Restroom facilities	<input type="checkbox"/>					
Low docks for small craft	<input type="checkbox"/>					
Signs to boat sites	<input type="checkbox"/>					
Access to the water	<input type="checkbox"/>					
Access to land for day use	<input type="checkbox"/>					
Access to land for camping	<input type="checkbox"/>					
Access for persons with disabilities	<input type="checkbox"/>					

31. Everyone has a different set of reasons for paddling on Lake Tahoe. Thinking about the **purpose of this outing**, please **rate the importance** of these attributes. (Please check one response for each)

	Not at All Important	Somewhat Unimportant	Neutral	Somewhat Important	Very Important
Observe scenic beauty	<input type="checkbox"/>				
Boat access to services*	<input type="checkbox"/>				
Boat access to camping	<input type="checkbox"/>				
Boat access to beaches	<input type="checkbox"/>				
View wildlife	<input type="checkbox"/>				
View Tahoe architecture	<input type="checkbox"/>				
Experience solitude	<input type="checkbox"/>				
Be with friends/family	<input type="checkbox"/>				
Observe historic sites	<input type="checkbox"/>				
Physical challenge/exercise	<input type="checkbox"/>				

* Restaurants, shopping, entertainment

32. Approximately how much did your household spend **locally** on the following items during this trip to Tahoe?

	Estimated Dollars Spent
Camping fees	\$ _____
Lodging	\$ _____
Restaurants	\$ _____
Groceries and Supplies	\$ _____
Gasoline	\$ _____
Shopping	\$ _____
Paddling gear & rental	\$ _____
Parking	\$ _____
Other	\$ _____

➤ INFORMATION ABOUT YOURSELF

Finally, we would like to know a bit more about you. Please remember that this information is anonymous, and will be used strictly for research purposes.

33. What is your gender? Male Female

34. What is your age? ____

35. Which of the following best describes your household (= the people you live with)?

<input type="checkbox"/> Single, no children (pl. skip to #11)	<input type="checkbox"/> Couple, no children	<input type="checkbox"/> Multiple adults, no children
<input type="checkbox"/> Single, with children	<input type="checkbox"/> Couple with children	<input type="checkbox"/> Multiple adults, with children

36. What was your total household income (before taxes) in 2007?

- Under \$25,000 \$25,000 to \$49,999 \$50,000 to \$74,999
 \$75,000 to \$99,999 \$100,000 to \$124,999 \$125,000 to \$149,999
 \$150,000 to 174,999 \$175,000 to 199,999 \$200,000 or more

37. What is the highest level of education that you have completed?

- Did not complete high school High school graduate
 Some college or technical training College graduate
 Graduate degree

38. Where is your primary place of residence?

- California city: _____ zip code: _____
 Nevada city: _____ zip code: _____
 Other USA (Please specify state _____)
 Other Nation not USA (Please specify nation _____)

39. What is the **single most important thing** that can be done to improve non-motorized boating/paddling on Lake Tahoe?

40. How knowledgeable are you about the threat of invasive species to Lake Tahoe, including the Zebra and Quagga Mussel?

- Very Knowledgeable Somewhat (I have heard about it) No Knowledge Until Now

APPENDIX B: Written Comments

Residents Written Comments – Most Important Thing

no wake hours, typical in the midwest, why not here?
sound/noise restrictions on powerboats
access to restrooms at reasonable intervals
larger area without power boats
restrict jet skis to certain beaches
more kayaking parking
get rid of jet skis
more restroom facilities along the shore.
raise the price of gas on the lake. education for motrized vehicles. make rental kayaks easily available.
no idea. it's pretty good. more parking and easy access.
keep the lake clean
low dock access at recreat sites that require a dock "landing" - otherwise, adequate space to pull into the beach is fine
making it safer around emerald bay for non-motorized boaters that every site has a trainer to demonstrate usage, not having motorized vehicles around kayaks
clean up after ourselves
make incline village beaches public
less motor boats
less motorized
ban motorized boats
educate boaters, especially tourists on safety rules wile around kayaks
no fee area
get rid of power boats
implement and enforce a nase ordinance to encourage visitors and residents to make their motor boats quiet for the enjoyment of everyone at the lake.
more kayak accesible stopping points along the shore especially east shore. more control of boat traffic, noise, speed, proximity to shoreline.
kayak storage
get rid of motorized boats
more motorized boat awareness of non-motorized boats
ease of access from parking lot to lake

i also enjoy motorized boating on lake tahoe, ia m an avid wakeboarder. education and awareness to motorized boaters about non-motorized boating.
more designated kayak areas to access lake.
limit motorized boating
increase zone to keep power boats farther from the shore
limit boats, make bots go slow near paddlers
boat-in campground at skunk harbor
better less stinky restrooms
provide facilities to store small boats- kayak beach in carnelian bay. tahoe city, lake forest
I think it is good as it is and accessible if you know where to launch a kayak.
access to boat-in only camping
facilities to keep boat (kayak) at the lake.
I find that it is all good
better launching/access points
access and parking for kayakers. info about put-in sites
pack in, pack out trash
educate boaters (motorized) and jet skis
limit the area of motorized boats! at least by hours. Am for non-motorized paddling.
boat camp sites
ban all non-wind powered craft
north shore camping access
wilderness/non-designated camping permits. more designated camping
Establish a water rail with designated launch service and camping locations.
Move kayak,put in location & camping
Access
Better restrooms
More Put in locations
Awareness/Availability
reduce motorized/non-motorized conflicts
More camping sites on the Nevada shore
Advocate for safety around power boats
Access to legal camping locations
limit motorized boats on areas of the lake

safety education,decibel restriction on motor boats
East Shore camping
Closer Parking-storage at the beach
Signs & parking-where to go?
Control powerboats watch their speed close to land
Very fast power-motor boats-drunks at the wheel
Get rid of power boats, expand & enforce no wake zones, reduce the
number of piers & Buoys
More put in locations, less cost
Control powerboats speeds close to shore
More established camp sites
Restrictions/Rules about motorized boats approaching/passing kayaks &
canoes on the lake(safety issues)
More lakeside campgrounds & access sites to the lake
To have more access point to the lake
Eliminate Coastal Boats
More Access to the Lake for launching & breaks
Access to areas on public lands
Restrict Motorized traffic
Public Access to beaches along the lake
Enforce and expand the NO Wake zone
Rest rooms, beach launch, picnic tables,etc.-maintain day-use &
camping facilities on State Park & US Forest Service property.
Bigger & better signs for motorized boats -no enter to swim areas,
Emerald Bay should be No wake zone-Noisy boats be aware of others,
recommend a boat house and floating docks for non-motorized craft.
Enforce motorized speed at a safer distance from shore.

Visitors Written Comments – Most Important Thing

better access/parking to boat launch and beach ramp for people with disabilities
keep it wet
non-motorized only beach is needed. no wake buoys need to be moved farther out and decide rating for all motorized craft of 70-90. more parking for non-motorized craft users.
more access, more small camping sites overnight w/ parking for kayakers, for those who want to circumnavigate the lake
free launch sites
educate motorized boaters about courtesy and effects of wake.
overnight parking.
so far doing a great job
more boat parking
handicap ramp for wheel chair to launch kayaks. more handicap parking.
create more put-in locations around the lake
signage for put-ins
not littering
have tighter regulations on jet ski drivers to keep them away from the shoreline and away from kayakers
minimize motor boat traffic and noise
more access points for kayakers, open earlier.
more restrictions on power boats; and keep power boats further offshore
more education through dissemination of printed literature i.e. paddle it in... paddle it out, etc.
more parking
have more parking
better parking
launch - no park ability
more access
work with motorized boats.
more beach front
you need to put a bridge at camp richardson, the traffic is always backed up because of ice cream and bikes.
more access areas
maintain access to the lake
control jet ski speeds. more parking for kayakers

can't think of anything. kayaking on tahoe is great
not sure
separate motor craft from non-motorized
more easier access with parking availability
more launching facilities with accessible parking
more beaches or non motorized boating
keep doing what you're doing
better parking, not having to pay
easy access to water
more safety precautions
keep the area clean
more info on good locations to kayak and access
have time limits on motorized boats so the water would not be as choppy
nothing, maybe fewer people but that won't happen
keep the lake clean!
pay the workers more
better maps of public landing locations
loading/unloading efficiency and location
have more parking so after we unload kayakers we don't have to walk miles to car
get rid of noisy, gas guzzling motor boats.
get rid of those wave runners
more kayak parking
more boat launch ramps
keep bigger boats from the shore
keep motor boats away from shore.
more launch sites
noticeable sign indicating the name of the kayak place from the water
speed boaters slowing down around kayakers, especially along the shore and coves, where you can't see around the bend
keep tahoe blue
keeping tahoe blue
safety
keeping lake clean, no pollution
launching and put-in sites
everything seems great

none

east shore access

it's perfect unless you can control wind³

nothing

stopping lake littering

more access so that one could paddle the entire perimeter of the lake without having to camp overnight

better parking and lake access

limit how many boats and jet ski's can go out on the lake. maybe a reservation system

clean facilities

more space, but thats hard because there are so many people here

map for paddling

more rental places

more locations

fewer motorized boats

improve put-in locations and parking

parking close to the lake

limit size of motorized boats

more open public beaches

more access to the lake

have more put-in sites that are easily accessible.

more parking

no noise

beach access

speeds of other motorized boats (slower around non-motorized)

get rid of power boats!

add whitewater paddle boats

make boaters aware of kayakers

an online guide for paddling destinations and camping sites

more space to park

more bathrooms along shore

outlaw jet skies. keep larger boats farther from beach

ban all motorized boating

fewer jet skis and skiboats near the shore

more access points, reduction in near shore motorized boat speed

limits- conflict, boat wake concerns w/ power boats.

east shore access

it's perfect unless you can control wind³

nothing

stopping lake littering

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better parking and lake access

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limits- conflict, boat wake concerns w/ power boats.

beaches. we observe many no
have non-motorized only access points
get rid of motorized boaters
nothing, it's great
beach access availability
lake side stowing
maximize access/info for access
it's great that there is not too many motorized boats at this location-
they are not overwhelming, I like the protected areas near pope beach
coast for paddling. It would be great if there were many coastline
protected areas so paddlers could safely explore
more launch sites
seperate motorized access from kayaks
info on access to shore for "rest"
no motorized craft
not having the motorized boats anchored out in the water. it makes it
difficult to get around
have a kayak only put-in site
more parking
beach access
delivery of kayaks to desired locations
limit the noise produced by motorized craft
ban offshore type boats!(just like we did with 2 stroke jet skis)
no wind! no fast motor boats/jet skis
prevent pollution in lake tahoe. keep the water and sand quality.
have one non-motorized day every week
seperate the 2 beaches, make just a kayak beach at all beaches
more parking
more parking/better access to launch beach
more roadside parking and better lake access
more parking
better parking, slow motor boats down, restrict their closeness to shore
more parking for kayaks
more parking
none, near perfect
limit motor boat usage
push motorized boats further out from beaches

have non-motorized only access points
get rid of motorized boaters
nothing, it's great
beach access availability
lake side stowing
maximize access/info for access
it's great that there is not too many motorized boats at this location-
they are not overwhelming, I like the protected areas near pope beach
coast for paddling. It would be great if there were many coastline
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more parking
better parking, slow motor boats down, restrict their closeness to shore
more parking for kayaks
more parking
none, near perfect
limit motor boat usage

more access
info on water trails/ signage
beaches for non-motorized boats
the trip went very smoothly, I can't think of anything to improve
lockup site near campsites
get rid of loud offshore boats
either enforce a very low speed zone shore and/or reserve some areas
just for non-motorized water sports
have non-motorized facilities for rental at state parks, like sand harbor,
sugar pine point, and bliss state park
Around the lake trail
Diverse site locations
Move access locations to water
equal access with consideration
Boaters ?
Don't sell blue kayaks?
Ban Motor Boats
Make it easier to get kayak to lake
Educate both Motorized & non-Motorized boaters
That's what you are for
Self guided trail with signs near shoreline
More Beach Access
Provide Short Term (2 hr. parking)
Don't Know
I don't Know
Camping exclusive to non-motorized boaters around the lake
nothing
Campgrounds of non-motorized vehicles around lake
Access
Keep water trail going-looks great-(map)
More promotion-I loved it! Will definitely do it again-Motor boats to land
control!
More Places to put in-mostly OK though
More beach access camping
More Access Points for Kayak launching only
Parking
trash pick-up/water clarity

info on water trails/ signage
beaches for non-motorized boats
the trip went very smoothly, I can't think of anything to improve
lockup site near campsites
get rid of loud offshore boats
either enforce a very low speed zone shore and/or reserve some areas
just for non-motorized water sports
have non-motorized facilities for rental at state parks, like sand harbor,
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I don't Know
Camping exclusive to non-motorized boaters around the lake
nothing
Campgrounds of non-motorized vehicles around lake
Access
Keep water trail going-looks great-(map)
More promotion-I loved it! Will definitely do it again-Motor boats to land
control!
More Places to put in-mostly OK though
More beach access camping
More Access Points for Kayak launching only
Parking
trash pick-up/water clarity

keep the lake from becoming a habitat for them

Boating safety-awareness classes geared to non-motorized vessels.

Closer to beach launch sites

Closer & designated launch for kayaks

Can't think of anything needed

APPENDIX C: Rating Tables

**VISITOR FACILITY RATINGS
By Percent and Number of Responses (N)**

	Excellent	Very Good	Average	Disappointing	Very Poor	Not Applicable
Access to Land Day	37.9 (130)	37.9 (130)	18.1 (62)	2.0 (7)	1.2 (4)	2.9 (10)
Access to Water	37.4 (130)	42.8 (149)	15.8 (55)	2.3 (8)	1.1 (4)	0.6 (2)
Conflicts Other Craft	30.0 (101)	35.0 (118)	23.4 (79)	3.6 (12)	1.2 (4)	6.8 (23)
Special Needs Access	10.5 (34)	11.7 (38)	19.8 (64)	4.6 (15)	4.3 (14)	49.1 (159)
Launch Site Crowding	29.1 (100)	27.6 (95)	18.6 (64)	4.7 (16)	0.9 (3)	19.2 (66)
Restroom Facilities	24.1 (83)	38.3 (132)	26.1 (90)	3.5 (12)	2.9 (10)	5.2 (18)
Signs to Sites	16.7 (55)	22.5 (74)	30.4 (100)	4.9 (16)	2.7 (9)	22.8 (75)
Low Docks	12.3 (40)	19.7 (64)	18.2 (59)	4.0 (13)	3.7 (12)	42.2 (137)
Access to Land Camp	14.8 (50)	15.1 (51)	15.7 (53)	5.6 (19)	4.2 (14)	44.5 (150)
Parking	23.8 (82)	29.1 (100)	23.5 (81)	11.9 (41)	7.3 (25)	4.4 (15)

**RESIDENT FACILITY RATINGS
By Percent and Number of Responses (N)**

	Excellent	Very Good	Average	Disappointing	Very Poor	Not Applicable
Access to Land Day	33.3 (31)	36.6 (34)	16.1 (15)	3.2 (3)	4.3 (4)	6.5 (6)
Access to Water	36.8 (35)	34.7 (33)	23.2 (22)	4.2 (4)	0.0 (0)	1.1 (1)
Conflicts Other Craft	32.6 (31)	24.2 (23)	25.3 (24)	10.5 (10)	2.1 (2)	5.3 (5)
Special Needs Access	6.5 (6)	5.4 (5)	16.3 (15)	4.3 (4)	7.6 (7)	59.8 (55)
Launch Site Crowding	30.9 (30)	22.7 (22)	21.6 (21)	1.0 (1)	2.1 (2)	21.6 (21)
Restroom Facilities	21.1 (20)	32.6 (31)	29.5 (28)	6.3 (6)	4.2 (4)	6.3 (6)
Signs to Sites	10.9 (10)	12.0 (11)	22.8 (21)	6.5 (6)	12.0 (11)	35.9 (33)
Low Docks	6.5 (6)	9.7 (9)	16.1 (15)	8.6 (8)	4.3 (4)	54.8 (51)
Access to Land Camp	13.0 (12)	10.9 (10)	12.0 (11)	8.7 (8)	12.0 (11)	43.5 (40)
Parking	23.7 (23)	24.7 (24)	25.8 (25)	15.5 (15)	4.1 (4)	6.2 (6)

**VISITOR REASONS FOR PADDLING LAKE TAHOE
By Percent and Number of Responses (N)**

	Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Not at All Important
Observe Scenic Beauty	84.8 (295)	12.4 (43)	2.6 (9)	0.0 (0)	0.3 (1)
Boat Access to Services	15.8 (53)	22.5 (75)	27.5 (92)	9.9 (33)	24.5 (82)
Boat Access to Camping	15.7 (53)	19.0 (64)	26.1 (88)	5.6 (19)	33.5 (113)
Boat Access to Beaches	56.2 (190)	26.0 (88)	10.9 (37)	2.7 (9)	4.1 (14)
View Wildlife	40.5 (138)	33.4 (114)	21.1 (72)	2.6 (9)	2.3 (8)
View Tahoe Architecture	21.5 (73)	26.5 (90)	27.4 (93)	10.9 (37)	13.8 (47)
Experience Solitude	45.1 (155)	33.4 (115)	15.4 (53)	2.9 (10)	3.2 (11)
Be with Friends/Family	75.9 (264)	19.5 (68)	3.4 (12)	0.0 (0)	1.4 (5)
Observe Historic Sites	24.9 (84)	27.5 (93)	29.0 (98)	8.3 (28)	10.4 (35)
Physical Challenge/ Exercise	45.0 (157)	41.8 (146)	10.3 (36)	2.0 (7)	0.9 (3)

**RESIDENT REASONS FOR PADDLING LAKE TAHOE
By Percent and Number of Responses (N)**

	Very Important	Somewhat Important	Neutral	Somewhat Unimportant	Not at All Important
Observe Scenic Beauty	85.4 (82)	12.5 (12)	0.0 (0)	0.0 (0)	2.1 (2)
Boat Access to Services	15.6 (14)	27.8 (25)	15.6 (14)	6.7 (6)	34.4 (31)
Boat Access to Camping	20.9 (19)	23.1 (21)	17.6 (16)	0.0 (0)	38.5 (35)
Boat Access to Beaches	58.5 (55)	25.5 (24)	6.4 (6)	0.0 (0)	9.6 (9)
View Wildlife	51.6 (48)	28.0 (26)	14.0 (13)	2.2 (2)	4.3 (4)
View Tahoe Architecture	20.0 (19)	21.1 (20)	23.2 (22)	16.8 (16)	18.9 (18)
Experience Solitude	51.6 (49)	25.3 (24)	11.6 (11)	4.2 (4)	7.4 (7)
Be with Friends/Family	66.0 (62)	18.1 (17)	8.5 (8)	1.1 (1)	6.4 (6)
Observe Historic Sites	19.4 (18)	30.1 (28)	32.3 (30)	10.8 (10)	7.5 (7)
Physical Challenge/ Exercise	57.3 (55)	35.4 (34)	5.2 (5)	1.0 (1)	1.0 (1)

