RECREATION & TOURISM INITIATIVE

Outdoor Recreation in the Pacific Northwest and Alaska: Trends in Activity Participation

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Cover

An angler tries her luck on Trillium Lake below Mount Hood, Mount Hood National Forest, Cascade Range, Oregon (photo by Jeff Gnass). Rafters descend a rapids on Deschutes River, Deschutes National Forest, Cascade Range, Oregon (photo by Linda Kruger). Motorhomes and recreation vehicles on a summer day, Seward, Alaska (photo by Linda Kruger).

Abstract

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Population growth in Oregon, Washington, and Alaska is expected to increase demand for outdoor recreation on public land. This trend will be tempered by changes in the sociodemographic composition of the population. Among sociodemographic characteristics, different ages and incomes correspond to different participation rates. Although older Americans are participating more, participation is still lower among this group for active pursuits. Hence, as the population ages, demand for passive activities may increase. Low-income people participate at a much lower rate than higher income people in outdoor recreation, and the growing disparity between the wealthy and poor may create inequities in opportunities for participation. State recreation planning documents for Oregon, Washington, and Alaska have identified this issue as a significant concern for recreation providers. Another important factor in recreation trends in the region is ethnicity: different ethnic groups participate in outdoor recreation at different rates, exhibit some different preferences for specific activities, and use recreation sites in different ways. In Alaska, the number of Asian/Pacific Islanders is expected to quadruple by 2025; in Oregon, the Hispanic population may triple by 2025; and in Washington, both these segments of the population may double.

Keywords: Recreation trends, public land, Pacific Northwest, Alaska, Washington, Oregon.

Contents

Introduction

This publication reviews and synthesizes the state of knowledge about outdoor recreation uses and trends in Oregon, Washington, and Alaska. Our intended audience is national forest recreation planners and managers, although other recreation providers may find the information we consolidate to be useful. The scope of our effort is broad, including recreation uses, participation trends, and selected factors likely to affect these trends. Thus, we cover topics such as participation rates in various activities, known relations between sociodemographic factors and participation, and trends in the region's population that are likely to influence future demand for recreation. Our focus, however, is limited to outdoor recreational activities that occur on public lands. Our information comes from various national and regional studies and includes government-sponsored and private market research. Resource managers may find this publication valuable as a quick reference for current statistical information (for example, regarding sociodemographic trends and recreation participation) or to locate specific sources of information.

Reliable information about recreation demand and participation is central to effective resource management.

The Need for Information About Recreation Uses and Trends

Reliable information about recreation demand and participation is central to effective resource management for many reasons. Such information is needed in conjunction with information about resource conditions so that defensible decisions can be made. It can also help managers anticipate likely problems and plan accordingly. Information is also crucial to evaluating the effectiveness of management actions that have been undertaken. Finally, there are legal mandates for obtaining and reporting some of this information. Each of these reasons is explained briefly below.

Information Is Required for Effective, Efficient, and Defensible Planning

Information on use and trends is critical for making defensible recreation planning decisions. Recreation planning frameworks, such as the Recreation Opportunity Spectrum (Driver et al. 1987, USDA FS 1982) and Limits of Acceptable Change (Stankey et al. 1985) assume that managers have a responsibility to provide opportunities for the public to attain various types of recreation experiences. It is assumed that the combination of activities and settings generate such opportunities. For instance, providing hiking trails in a wilderness where use density is low can provide opportunities for people to experience solitude and contemplation as well as skill development. On the other hand, providing designated off-highway vehicle

(OHV) areas near urban areas can provide opportunities for family bonding and social experiences. The social environment is a key element of the overall setting, and effective recreation managers understand how many people use different recreation sites and why. This information is useful for establishing routine maintenance and provides a basis for strategic long-term planning.

People other than recreation managers also benefit from valid information about existing recreation demand. For example, locally, the level of hiking use on a trail may be information that wildlife biologists need to identify potential threats to endangered species. Regionally, information on the spatial distribution of demand can help set agency priorities. Information at these broader scales can help regional planners identify appropriate niches for different places (McCool and Cole 2001).

Regionally, accurate data will permit the allocation of resources to be made on the basis of documented need, rather than subjective assessments. Historically, information on use levels was unevenly reported for national forests, both across activities and across management units. Although information from concentrated use areas or fee sites (such as campgrounds and visitor centers) is readily available, accurate information about dispersed use has been largely unavailable. Additionally, dispersed use makes up a very important and large segment of recreation visitation in many places. If each unit reports participation in qualitative terms based on noncomparable data quality and quantity, decisionmakers cannot be confident that they have an accurate portrayal of the recreational landscape. Important, but poorly documented uses may be overlooked altogether.

Information about use levels can help with long-term planning and anticipation of future problems. For example, knowing that whitewater kayaking in the region has increased significantly over past years can help managers of currently less popular rivers anticipate future use at their sites. Such information may also help identify potential conflicts. For example, is float boating increasing on rivers where angling is concentrated? Is mountain biking increasing in a popular hiking area? Activity conflict is an obvious example, but other examples may not be so obvious. For instance, if data show that wilderness hikers are increasingly inexperienced (being newcomers who rely on their global positioning system units to navigate), search and rescue efforts may increase as well. Or, if wilderness use is shifting from overnight to day use–as seems to be the case–management systems that focus solely on campers' behavior may be misplaced. Staying alert to emerging activities–geocaching in wilderness or kite-boarding on the Columbia River–may help managers prevent problems before they arise. Thus, combined with other information and professional acumen, trend information can help managers be proactive.

At the local level, collecting and reporting information about use levels or visitor characteristics may seem burdensome. Local managers often understand enough about their users and use patterns to make good decisions about day-to-day management without having to conduct detailed assessments. Nevertheless, in today's contentious and competitive environment, this information is needed by the agency to defend funding for its recreation programs and facilities and make decisions that protect recreation values and opportunities desired by users. As an entity, the Forest Service must be able to document the value of recreation in comparison to the values of the other resources it stewards. This need underlies the relatively new National Visitor Use Monitoring (NVUM) system of obtaining and reporting recreational use across the national forests. Moreover, as experienced professionals retire, taking their accumulated wisdom with them, new managers will need a documented, accurate, and reliable record of use and trends.

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Information Is Critical to Monitoring the Effectiveness of Actions

Information on current and future recreational demand is important for more than planning decisions. Management actions such as the development of a new campground, prohibition of campfires at a wilderness destination, or closure of popular forest roads used by hunters have both intended and unintended consequences (e.g., Hall and Cole 2000). Monitoring the effects of management actions is critical for determining the effectiveness of these actions. Information about effects or changes at one site may also be useful in understanding change at another site. This level of understanding is important because displacement or spillover impacts are likely to occur as the population of the region increases. Changes in management of nearby lands managed by other agencies or jurisdictions can have significant effects on demand for recreation on national forests. Such effects cannot be accurately described or evaluated without baseline data.

As resource managers embrace ecosystem management, they recognize that management actions must be taken under conditions of limited information and uncertainty–we can never understand the complexities of the whole system (Stankey et al. 2001). Ongoing monitoring is required to determine the need for mid-course adjustments, and accurate information becomes even more critical. Timely, accurate information helps management achieve desired results and prevent unanticipated, adverse consequences.

Legal Requirements to Collect and Report Use Data

Many of the statutes that govern resource management on national forests require the reporting of resource uses, including recreation. These include the legislation governing national forest planning (e.g., the National Forest Management Act) and

reporting (e.g., the Forest and Rangeland Renewable Resources Planning Act), as well as policies developed to implement these laws (Forest Service Manual [FSM] and Forest Service Handbook [FSH]). Recent emphasis also comes from the Government Performance and Results Act. Each is described below.

Congress enacted the Forest and Rangeland Renewable Resources Planning Act (RPA) in 1974 amid social concern about the environment and natural resources. The RPA required the Forest Service to periodically (at approximately 10-year intervals) report to Congress on the state of supply and demand for all forests and rangelands in the United States. Recreation–including wilderness–is one of the resources tracked in the RPA assessments. These recreation assessments, now carried out by the Forest Service's Southern Research Station through its National Survey on Recreation and the Environment (NSRE), are one of the most important sources of information about recreation uses and trends at a national level.

The National Forest Management Act of 1976 (NFMA) strengthened congressional direction to monitor resource conditions, including recreation. By requiring a resource management plan for each national forest that must be updated periodically, the Forest Service is directed to collect and describe information on resource conditions. Together with the National Environmental Policy Act of 1969 (NEPA), which requires close analysis of the environmental and social impacts of actions, NFMA mandates that the agency collect reliable information on uses and discuss expected future trends and needs.

The FSM and FSH translate legal direction into concrete policy guidance. Recreation planning is addressed in FSM 1920 and FSH 2300, with requirements specified in 36 CFR 219. Planners are directed to collect and analyze data on uses and propose programs and facilities that meet America's outdoor recreation needs. Specifically, they must inventory existing and potential recreation opportunities and determine future demand. They are also directed to collect, store, and distribute information on recreation to ensure proper management and public awareness. Planners should coordinate with other recreation providers to avoid competition with private providers, duplication of facilities and opportunities, and land use conflicts. Information on trends in recreation demand can help in such coordination.

In the past 10 to 15 years, the federal government has moved toward business models of operation and increased accountability. In 1993, Congress passed the Government Performance and Results Act (GPRA). Lawmakers were concerned about waste and inefficiency in federal programs and felt that federal managers were having difficulty articulating program goals and evaluating the performance of programs. They saw this as a disincentive for managers to improve any program's efficiency and effectiveness. Congress believed that, if it were left with

inadequate information about program performance and results, this would handicap its efforts in policymaking, spending decisions, and program oversight. The GPRA requires clear statements of program objectives, development of 5-year strategic plans, and annual reporting of accomplishments. As part of this, information on recreation and tourism uses of national forests is reported. The Forest Service's Strategic and Annual Performance Plans require assessment of visitor satisfaction and documentation of use levels in order to improve public service.

Knowledge of recreation participation levels, characteristics of recreational visitors, and participation trends is valuable to Forest Service managers. For managers without programs in place to collect such information, many secondary sources are available that can be used as proxies for information collected locally. For regional planning, for example, this information is probably superior to anything that could reasonably be collected by local managers. The U.S. Census Bureau provides information about population trends and composition at the county level–along with projections about likely future changes–that can be useful in long-term resource management plans. In the following section, we identify major secondary sources that are available to managers. We describe national, regional, and local studies, including those conducted by both governmental entities and private industry. See the appendix for a quick reference guide to these sources.

Sources of information about recreation use levels and trends in activity participation range from descriptions of the general characteristics of recreationists at a national scale, through regional or state data sources to specific local studies.

What Information Exists About Recreation Trends, and How Accurate, Reliable, and Comprehensive Is It?

Sources of information about recreation use levels and trends in activity participation range from descriptions of the general characteristics of recreationists at a national scale, through regional or state data sources to specific local studies. Information at different scales can be useful to agency decisionmakers for different reasons. Although the recreation planner on a ranger district may find local data most useful, he or she may find it beneficial to gain a broader perspective of recreation at the regional or national level to better understand the overall context (McCool and Cole 2001). Sometimes local data are unavailable, and planners must rely on regional or national sources as the best available proxy. On the other hand, managers at the regional and national levels often need broad-scale data, but they may also desire a better sense of localized on-the-ground concerns.

National-Scale Information

Several useful data sources are available at a national level, many of which are longitudinal and, therefore, provide an indication of trends. National sources tend to be the only reliable sources of long-term (more than 10 years) trends. Although some

encompass a broad range of recreational activities and settings, a few are specific to public lands or the types of activities that occur there.

National survey of recreation and the environment—
The NSRE was developed from the earlier National Recreation Survey (NRS) studies, and today it fulfills the reporting requirements of the RPA (Cordell et al. 1999, 2004). It addresses both supply and demand for outdoor recreation on public and private lands. Data are collected from a national sample of people, so assessments of use on any specific management unit (e.g., ranger district) are generally not possible. However, participation rates are contrasted by type of setting (forest, farm, marine, freshwater, and urban), as well as by region and state (Cordell et al. 2004). Because it asks about recreation on federal lands and has been conducted many times, this is an important source of information about long-term trends on national forests.

The original NRS studies were conducted in 1960, 1965, 1970, 1972, 1977, and 1982-83 (USDA FS 2006). The first NSRE was implemented in 1994-95. The NSRE uses telephone interviews with a representative sample of Americans who are 16 years of age or older to obtain information about year-round recreation participation. In recent years, the NSRE surveys have broadened to include several different versions, each with more than 5,000 respondents. Sampling intensity is designed to permit state-by-state analysis, and state reports are available through the Southern Research Station (SRS) and summarized in Cordell et al. (2004), as well as in brief statistical updates published on the SRS Web site. The 18 different versions of NSRE 1999-2004 have many common questions, but different foci. For instance, one studied Americans' views on wildfire, one examined the values of public lands, whereas another examined environmental attitudes, and another focused on wilderness. The primary data sets from the 1994-95 surveys, as well as from 1999-2000 can be downloaded for free from the Forest Service's Southern Research Station. Version 1 of the 1994-95 survey addressed attitudes toward public versus private provision of outdoor recreation; specifics on the type of place used and expenditures during the respondent's most recent outdoor recreation trip; the importance of recreation facilities, services, and opportunities; and barriers to participation. Version 2 addressed environmental attitudes, types of information used in planning trips, options for funding recreation, use of water bodies, and wildlife-related recreation. Both versions include detailed information about activity participation, disability needs, views on wilderness, and sociodemographic characteristics. The 1999-2000 data include, among many other topics, activity participation, attitudes toward the Forest Service and its management of public lands, environmental concern, demographic information, knowledge of wildfire, attitudes toward fees,

knowledge of and attitudes toward wilderness, and use of national forests. The different survey versions can be important sources of information about American attitudes toward various aspects of public lands management. The specific questionnaire items are presented on the SRS Web site. Excellent summaries and PowerPoint[1] presentations are available for public use. More information can be found at www.srs.fs.usda.gov/trends/Nsre.

Reports from the NSRE assess participation rates among adult Americans for 85 land and water-based activities, by region, age, and ethnicity. These findings are presented in *Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends* (Cordell et al. 1999) and *Outdoor Recreation for 21st Century America: A Report to the Nation* (Cordell et al. 2004). The first reports supply and demand data from 1994-95 and then interprets these data in chapters by subject matter experts who address the meaning and implications of the various observed trends. The book covers the following topics:

- The supply of public land recreation resources and opportunities on private rural lands.
- Past participation trends by gender, age, income, and race, with an emphasis on comparison of the 1982-83 and 1994-95 NSREs.
- Forecasts for future participation, by activity type, based on assumptions about population growth and change (predictor variables are age, income, ethnicity, gender, and regional population), as well as expectations about changes in supply within a 200-mile radius of any given type of area (including acres of water, wilderness, federal forest lands, nonfederal wetlands, state parks, ski areas, land covered with snow in winter, agricultural land, and developed campsites).
- The state of wilderness recreation, including trends and projections in visitation as well as changing American attitudes toward wilderness.
- How the public perceives and evaluates outdoor recreation, including assessment of satisfaction (based on more than 11,000 interviews with visitors at 31 areas). This chapter also includes a literature review of studies on recreation motivations, expectations, and preferences, with a special focus on crowding.

The most recent book based on the NSRE (Cordell et al. 2004) is intended as a resource volume for those interested in specific trends, and it contains extensive tables. Its data are from survey versions implemented between 1999 and 2001 (with a total sample of 42,868 people). Long-term trends (since 1960) are reported for

[1] The use of trade or firm names in this publication is for reader information only and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

biking, horseback riding, camping, hunting, fishing, canoeing/kayaking, sailing, swimming, and skiing. Trends since 1982 among Americans age 12 and over are presented for 32 specific activities. For the recent data, participation is reported in millions of participants, percentage of participation, and number of activity days for nearly 80 different activities. A particularly useful feature of this book is the presentation of activity participation rates for each state.

Recently, the Southern Research Station began issuing brief "Recreation Statistics Updates," published on its Web site (www.srs.fs.usda.gov/trends/). These present participation rates based on more recent versions of the NSRE, as well as information on participation in specific activities (e.g., OHVs) or by different ethnic groups.

The Forest Service has estimated recreation use and maintained records since the 1950s.

The National Visitor Use Monitoring Program—
Initially guided by recommendations from the Outdoor Recreation Resources Review Commission, the Forest Service has estimated recreation use and maintained records since the 1950s. Many publications on preferred techniques for estimating recreation use at developed and dispersed recreation sites were sponsored by Forest Service Research Stations and universities in the 1970s and 1980s (e.g., James and Schreuder 1972, Lucas and Kovalicky 1981, Lucas et al. 1971, Petersen 1985).

Until the mid-1990s, the Forest Service relied on its Recreation Information Management (RIM) system to document recreation uses that occurred within each national forest. However, managers did not have sufficient resources to carry out daily management as well as collect visitor data according to the established protocols. There was general recognition that the data reported were of uneven quality; for example, campground use data were probably accurate, but estimates of dispersed recreation were not. Some data had to be estimated based solely on professional judgment, owing to a lack of empirical data. As an agency, the Forest Service was unable to make accurate statements about the amount, location, or type of use of the national forests. After 1996, the RIM monitoring protocols were discontinued.

The NVUM project was initiated to provide cost-effective, accurate, reliable, and comparable information about visitor use and satisfaction with national forest recreation opportunities

The NVUM project was initiated to provide cost-effective, accurate, reliable, and comparable information about visitor use and satisfaction with national forest recreation opportunities (USDA FS 2002). In 1998, a national team of agency personnel and researchers developed a pilot sampling system to provide statistically reliable recreation use estimates at the forest, regional, and national levels. The system received extensive peer review, and after initial pilots were deemed successful, it was implemented across the agency in 2000. The survey also provides important information for Congress and external customers including states, private industry,

and academia. The NVUM data help fulfill monitoring elements in the USDA Forest Service Strategic Plan (USDA FS 2000).

The NVUM provides national, regional, and forest-level data and cannot provide precise or reliable estimates at a finer scale without supplemental sampling. Although it is a national effort, NVUM studies only account for 25 percent of the national forests each year, so that a complete cycle takes 4 years. As of 2005, all forests had been monitored at least once, and reports are available through the Southern Research Station. Databases are housed within the National Resource Information System (NRIS) Human Dimensions module and are available at www.fs.fed.us/emc/nris/hd/.

The NVUM estimates the number of national forest visits and national forest site visits to provide comparable estimates of visitor use across all national forest lands. National forest visits are considered the "entry of one person to a National Forest to participate in recreation activities for an unspecified period of time and can be composed of multiple site visits. National forest site visits are considered the entry of one person to a national forest site or area to participate in recreation activities for an unspecified period of time" (USDA FS 2002). Estimates are developed separately for four categories of land on each national forest: wilderness, general forest (dispersed recreation), developed day use sites, and developed overnight sites.

The NVUM data are intended to estimate use with a known level of precision. That is, sampling intensities are intended to generate 80 percent confidence intervals with an error of ±8.9 percent. Within each land type, specific sampling units and dates are randomly selected. On any given forest, a small number of sites are selected to represent each category of land and level of use, and several days of sampling (usually at least eight) occur randomly across the entire use season(s). During sampling periods, researchers contact visitors on site and ask them a series of questions about their length of stay, participation in nearly 30 activities, residential origin, age, race/ethnicity, expenditures, and satisfaction. In the Pacific Northwest, survey response rates have generally been above 80 percent with several hundred to a few thousand visitors participating per national forest.

Each national forest can add specific questions to meet its needs (called "value-added" elements), and NVUM researchers have developed various projects to study different research questions in conjunction with the standard NVUM survey. Many forests have taken advantage of this. For instance, the Gifford Pinchot National Forest, the Columbia River Gorge National Scenic Area, and the Umpqua National Forest designed localized value-added questions of interest and added them to the NVUM as a short onsite experience survey. Visitors were queried about their

attitudes toward how the forest is being managed and their motives for recreating in national forests. These data allowed recreation specialists to gain a better understanding about visitors' attitudes, values, and connection to forest places. These value-added elements have become so popular that NVUM is making plans to increase value-added questions in the next survey cycle.

More information can be found at www.fs.fed.us/recreation/programs/nvum/. The use reports for each national forest can be downloaded. These contain details of sampling, estimates of visitation, activity participation, visitor characteristics (ethnicity, age, gender, zip code), length of stay, facilities used, and satisfaction with facilities and services.

Approximately every 5 years since 1955, the U.S. Fish and Wildlife Service (FWS) has produced the *National Survey of Fishing, Hunting, and Wildlife Associated Recreation*.

National Survey of Fishing, Hunting, and Wildlife-Associated Recreation—Approximately every 5 years since 1955, the U.S. Fish and Wildlife Service (FWS) has produced the *National Survey of Fishing, Hunting, and Wildlife Associated Recreation* (USDI FWS and U.S. Census Bureau 2002). This survey provides information about how many people fish, hunt, and watch wildlife across the country and by state. It assesses total participation, not just on federal lands. It also includes extensive information on the time and money recreationists spend when performing these activities. This effort is probably the single most intensive and statistically rigorous national database on specific aspects of wildlife-related recreation in the country.

The most recent survey, conducted in 2001, used interviews to screen 80,000 U.S. households selected from census files for participation in wildlife-related recreation. Participation statistics for children (age 6 to 15) came from the screening interviews, which asked about participation by all household members. Subsequently, detailed phone or in-person interviews were conducted with more than 25,000 adult (age 16 years or older) anglers and hunters (response rate 88 percent) and more than 15,000 wildlife watchers (response rate 90 percent). Participants in the detailed study reported the frequency of their activities and all expenditures over a period of either 4 or 8 months.

The survey report includes the number of anglers, hunters, and wildlife-watching participants, the number of trips and days they spend on different types of activities, and the amount of money they spend for equipment and trips.

The survey report includes the number of anglers, hunters, and wildlife-watching participants, the number of trips and days they spend on different types of activities, and the amount of money they spend for equipment and trips. Data are categorized by type of fishing, hunting, and wildlife-watching activity. Participant demographics are presented, such as age, income, sex, race, and education. Comprehensive tables organize the information state-by-state as well as nationally.

More information can be found at www.census.gov/prod/2003pubs/fhw01-us.pdf.

Industry studies—

In addition to government-sponsored assessments of recreation, several studies by private industry are also available. For instance, Roper has done several reports for the Recreation Roundtable on "Outdoor Recreation in America" based on national samples of Americans age 18 years and older. Each year, approximately 2,000 randomly selected respondents are interviewed about their participation in 37 outdoor recreation activities. Each year's study also has a specific focus. For instance, the 2000 report (Roper Starch 2000) dealt with "key societal concerns" and the 2003 report emphasized "benefits challenged by trends" (RoperASW 2004).

The Outdoor Industry Foundation (OIF) also generates annual Outdoor Recreation Participation Studies (formerly published as the Outdoor Industry Association) that deal with 22 human-powered activities. Although this does not include many activities specific to national forests, it does provide information on trends since 1998 for many relevant activities, categorized by gender, ethnicity, and age group. Activities include bicycling, camping, cross-country skiing, fishing, climbing, whitewater paddling, snowshoeing, and backpacking. The studies involve telephone interviews (random digit dial) with Americans age 16 years and older. A quota sampling approach is used to ensure 1,000 interviews for each of four regions of the United States. Refusal rates are not reported. The most recent report (OIF 2005) contains trend information from all 7 years for each activity.

The Sports Business Research Network offers subscriptions that provide market research findings and trade publications, as well as custom reports. Participation trend information comes from the National Sporting Goods Association's (NSGA) surveys conducted annually since 1996 for more than 60 sports and activities. Data are available by state and by demographic group (including age, gender, and income) (NSGA 2005). A sample report is available on their Web site (www.nsga.org), as is a summary of 10-year trends (1994-2004) in participation by Americans age 7 years and older for 45 activities. The NSGA itself also provides detailed research reports for purchase. Each report is based on a mail survey of 10,000 to 40,000 U.S. households, with response rates over 65 percent. Instructions ask that both male and female heads of households and two other household members report the number of days of participation over the year for each category of activity. Activities of interest to national forest recreation managers include backpacking/wilderness camping, bicycle riding, camping, fishing, hiking, hunting, motorboating, kayaking/rafting, sailing, skiing, snowboarding, waterskiing, snowmobiling, snowshoeing, mountain/rock climbing, and windsurfing. Participation is reported by gender, age, income, and education. One report, based on a sample of 20,000 households, describes participation on a state-by-state basis in 33 activities

(including backpacking/wilderness camping, bicycle riding, motorboating, camping, fishing, hiking, hunting, mountain biking, and skiing).

The Sporting Goods Manufacturers Association (SGMA; www.sgma.com) also commissions participation studies that monitor more than 100 activities. Their recent (SGMA 2005) sample from the "Superstudy® of Sports Participation" includes individuals age 6 years and older. Data were collected via mail surveys of 24,000 households with a 62-percent response rate. Activity-specific reports are available for purchase, and these present participation information (including analysis by age, sex, income, region, and education), as well as change in participation over recent years. National participation rates for all activities for the years 1987, 1993, 1998, 2001, 2002, and 2003 can be found in the most recent report, Sports Participation Topline Report: 2005 Edition. This free, downloadable report provides information about bicycling, mountain biking, camping (tent and recreation vehicle), hiking (day and overnight), horseback riding, rock climbing, hunting, fly fishing, other fishing, cross-country and downhill skiing, snowshoeing, canoeing, kayaking, rafting, jet skiing, and waterskiing.

Another comprehensive, but slightly older, public domain presentation of industry data is found in Kelly and Warnick's (1999) analysis of the Simmons Market Research Bureau's studies from 1976 to 1996. These annual data are based on samples of more than 15,000 households and describe activity participation among Americans 18 years and older. The book presents trends and projections for more than 60 activities within the categories of community, team, fitness, outdoor water, winter, travel, and home or local activity. Most trends are shown since 1975, with more recent participation rates broken down by age. Unlike many sources, Kelly and Warnick make qualitative projections about future trends, identifying "established," low participation, and "growth" market segments. These interpretations are based on the Simmons data, but also consider trends from NSGA's annual studies of more than 35,000 adults and children. One additional benefit of this book is its discussion of several important limitations and considerations when making projections about recreation trends. It also provides a useful chapter on anticipated sociodemographic trends in such characteristics as age, family composition, economic status, and lifestyle.

Industry reports such as those listed above provide assessments at the national and regional scales. Often they use large, random samples of the public, and hence appear to follow accepted research methods. However, there are four important points to bear in mind when considering their use: First, it is not always clear how data were collected and whether appropriate analysis was used to draw inferences to the U.S. population. Furthermore, sometimes samples are small, particularly for

individual strata. Second, in many cases the reports must be purchased, and the prices range from $200 to $400 per report. (However, many summaries, such as we use in this report, are free.) Third, the data in purchased reports are often proprietary, and permission must be obtained to publish information. Fourth, data are from national samples of people who recreate on any lands, not just national forests. Hence it is not possible to disaggregate national forest recreation from recreation on other lands. The NVUM is more narrowly focused on national forest use, and the NSRE asks questions that permit analysis of recreation within national forests.

Other national sources of information on specific activity trends are likely to be available to those who are willing to search for them. For instance, the U.S. Coast Guard's Office of Boating Safety commissioned a national survey of boating in 2002 (Strategic Research Group 2003). This study was based on two surveys: (1) a mail survey completed by registered boat owners (with a response rate of 49 percent); and (2) a random-digit-dial telephone survey of general households (response rate of 61 percent). Sampling was designed to ensure that 500 boaters (250 registered boat owners and 250 nonowners who boated) were included from each state. In all, 25,547 surveys were completed. Although the report does not provide analysis by state, it gives national estimates of the number of boaters, types of craft used, group composition while boating, and activities done while boating (such as swimming, fishing, or hunting).

One of the most important sources for regional information is a state's Statewide Comprehensive Outdoor Recreation Plan (SCORP), and many states have high-quality plans.

Regional Studies

One of the most important sources for regional information is a state's Statewide Comprehensive Outdoor Recreation Plan (SCORP). States are required to draft a 5-year SCORP to qualify for federal Land and Water Conservation Fund monies for recreation, and many states have high-quality plans. Often, SCORPs report past and projected trends in outdoor recreation participation across the state based on their own surveys, although some use other data, like the NSRE. This can highlight regional trends that differ from overall national trends, an important context for local planners and a key strategic consideration for regional planners. The SCORPs are increasingly available online and can be easily obtained through the state agency responsible for planning. A brief overview of the Oregon, Washington, and Alaska SCORPs follows. For a more indepth discussion of the data they contain, see "What Does Existing Information Say About Recreation Activities and Trends."

Oregon Statewide Comprehensive Outdoor Recreation Plan—
The 2003-07 Oregon SCORP is the state's 5-year outdoor recreation plan (Oregon Parks and Recreation Department 2003). To ensure quality outdoor recreational opportunities for both Oregonians and out-of-state visitors, guidance is provided

to the private sector and federal, state, and local governments. The SCORP document includes results of a representative survey of Oregonians, a description of the supply of opportunities and facilities on public and private lands, and a demand and needs analysis. It sets forth key statewide issues, namely equity, growing income disparity, rural community collaboration, potential increases in recreational use of waters, increasing population diversity, and user conflicts (e.g., motorized vs. nonmotorized recreational use). Additional issues include protecting streams, fish and wildlife habitat, and threatened and endangered species; increasing environmental education and nature study activities; adapting recreational areas into quiet natural settings; and developing recreation facilities with high amenities and accessibility.

Other statewide recreational issues discussed in the Oregon SCORP were identified by public participation workshops and consultation with other recreation providers (Oregon Parks and Recreation Department 2003). The following needs were acknowledged:

- Major rehabilitation of existing outdoor recreation facilities
- An updated trail network
- Land acquisition
- Team sport fields
- Water-based recreation resources and facilities
- Recreational planning and assistance
- Recreational funding and user fees
- Resource protection and environmental education

Addressing the state's key concerns can lead to more effective management of national forest recreation resources and higher levels of responsiveness to recreation users.

Oregon State University conducted the state's most recent household SCORP survey by using a mix of phone and mail surveys to randomly sample 4,400 Oregonians (400 from each of the 11 SCORP planning regions) and 800 nonresidents (from bordering counties in Washington, Idaho, and California). These sample sizes were established to ensure a moderately high level of statistical precision (Oregon Parks and Recreation Department 2003). In the telephone surveys, which were primarily intended to solicit participation in the mail surveys, respondents were asked about their outdoor recreation activities in the past 12 months. (The response rate for the telephone survey was not reported.) These numbers generated annual visitation estimates and, when combined with 2000 census data for the state, generated estimates of "recreating households." Calculations were also performed (methods not described) to estimate the percentage of the state population participating in 13 categories of activities.

In the mail survey, respondents indicated how many household members (self and others) participated in each of 76 activities in the past 3 months, along with the number of times and average trip length. There were four waves of surveys, which together permitted estimates of annual participation for each activity. Of 3,803 surveys mailed out, 59 percent (2,238) were returned. Questions were asked about recreation participation by all household members so the data should provide estimates of participation for state residents of all ages.

For more information, see the section on trends or go to: www.oregon.gov/OPRD/PLANS/scorp_survey.shtml.

Washington Statewide Comprehensive Outdoor Recreation Plan— Under state law, an Interagency Committee for Outdoor Recreation (IAC) is responsible for forecasting the demand for recreation in the state of Washington. The committee developed Washington's SCORP in 2002 (IAC 2002). The IAC also published a report in 2003 entitled "Estimates of future participation in outdoor recreation in Washington State."

The Washington SCORP describes existing demand for outdoor recreation, based on a statewide survey conducted by an independent survey firm; it also describes the supply of opportunities and develops a needs analysis.

The Washington SCORP describes existing demand for outdoor recreation, based on a statewide survey conducted by an independent survey firm in 1999-2000. This involved having 1,500 randomly selected people complete activity diaries over 1 year (surveys were mailed out and completed at the end of each 2-month period). The study established a quota of at least 100 respondents in each of six age groups (<10 years, 10 to 19, 20 to 34, 35 to 49, 50 to 64, and over 65) for two regions (east of the Cascade Range and west of the Cascade Range), with at least 10 people from each county. Telephone interviews of randomly selected individuals were used to screen and recruit the sample. (Response rates for the telephone interview were not reported.) Three hundred of those who initially agreed to participate ultimately dropped out, and they were replaced by others matched to their demographic characteristics. Although the response rate for the mail survey was not reported, the plan states that "sufficient returns were realized to meet the desired response rate," which had been identified as 40 to 50 percent (IAC 2002: 89).

The Washington SCORP surveys asked about participation in 15 major categories of activities, most of which can and do occur on national forests. The study reports participation rates as a percentage of total state population, indicating that it includes all age groups. Participation rate data are also contrasted for different age groups.

The Washington SCORP also describes the supply of opportunities and develops a needs analysis. Public focus groups and meetings generated several key messages for recreation managers:

- Increasing population means that crowding is increasing in outdoor recreation, and there are also impacts on the environment.
- Increasing participation in "high-impact" activities is leading to increased conflict.
- The supply of recreation facilities is not located where the people are, is often in poor condition, and may be closed when people want to use it.
- Lack of access is more of a public concern than the supply of facilities.

For further information see the section on trends or go to: www.iac.wa.gov/Documents/IAC/Recreation_Trends/SCORP_Oct_2002.pdf www.iac.wa.gov/Documents/IAC/Recreation_Trends/Est_Future_Particiption_Outdoor_Rec_3-03.pdf.

Alaska's SCORP aims to promote interagency relationships and coordination, as well as lead to balanced use and development of public lands.

Alaska Statewide Comprehensive Outdoor Recreation Plan—
As an inventory of issues, trends, needs, and existing facilities on all public lands in Alaska, the SCORP helps Alaska policymakers identify priorities for recreation (Alaska Department of Natural Resources 2004). Alaska's SCORP aims to promote interagency relationships and coordination, as well as lead to balanced use and development of public lands.

Public participation was encouraged in the development of the 2004 SCORP. Sixteen community workshops were held throughout the state, telephone surveys were conducted, mailback surveys were distributed to recreation providers, and the public's review of the plan was taken into account. Recreation agencies and organizations also contributed to the plan (Alaska Department of Natural Resources 2004). The telephone survey involved equal numbers of respondents from three regions (the Railbelt, Southeast, and Rural), for a total of 600 individuals age 18 years or older. Response rates were not given for the telephone survey, and the use of quota sampling means that specific adjustments must be used to make inferences to the state as a whole.

The "informal" household survey obtained 992 mail surveys with a response rate of 58 percent. This survey was also completed via Internet by 332 people, and this was not a random or representative sample. The methods used to solicit respondents were not given. The nature of the questions suggests that any household member of any age could complete it. Most (92 percent) of the surveys were from those who live in the Railbelt region, which runs from the south end of the Kenai Peninsula north to Fairbanks and east to Canada and is where most (73 percent) Alaskans live.

The telephone survey revealed attitudes about recreation participation and thoughts concerning funding of recreation. Residents were asked about their

participation in 38 activities, including hunting and fishing, hiking, and winter sports (Alaska Department of Natural Resources 2004). From the SCORP, it does not appear that the mail survey results were used; instead, data in the plan appear to be only from the phone survey.

The Alaska SCORP identifies several issues of concern for recreation providers in the state. For instance, residents are becoming increasingly dissatisfied with their park experiences because of crowding (Alaska Department of Natural Resources 2004). Recreation managers face the challenge of continuing to provide high-quality opportunities for an increasing demand. Citizens are more concerned with maintenance of existing facilities than the development of new sites or facilities. If new facilities are to be built, primary issues for the public are disabled access, more public use cabins, sanitation improvements, and new trails for both motorized and nonmotorized users. The state perceives declining oil revenues as a problem for continued support of the state's growing outdoor recreation demand. There is evidence in the SCORP surveys that citizens would support certain types of fees to support various uses.

For more information, see the section on trends, or go to www.dnr.state.ak.us/parks/plans/scorp/. Survey results are located in SCORP appendices at www.dnr.state.ak.us/parks/plans/scorp/appa2f.pdf.

Other state agencies—

Many state agencies are responsible for assessing participation in specific recreational activities. For instance, Wilde et al. (1996) reported that most (81 percent) state fish management agencies had conducted some form of survey of licensed anglers within the past 5 years. These data should be available to any interested party. Data on fishing and hunting license sales are available for Oregon, Washington, and Alaska, and trends in these are reported in this document. Washington publishes trends in the number of registrations of recreational vehicles since the late 1970s on a state Web site.

State Marine Boards also conduct assessments of boating via surveys. For instance, Oregon's State Marine Board (OSMB) conducts studies every 3 years of registered motorboat/sailboat owners in the state. The 2001 study (OSMB 2002) collected information from 4,381 boaters (70-percent response rate). The mail survey asked about use of their craft, activities, location of boat use, and perception of problems or user conflict. Use estimates are provided for each of the 251 major water bodies in the state, and total use is broken out by county. The study has been conducted several times, providing an important source of information on boating-related trends in Oregon.

State park agencies often provide trend data on park visitation, either in published form or by request. Although trends at state parks may differ from trends in national forest use, they provide a useful source of information, particularly for regional use and for relevant types of parks.

The Oregon Tourism Commission's (OTC) "Travel News" presents annual summaries of events and changes at major tourism destinations across the state. Its travel impact reports provide expenditure information for site-specific attractions and information from local chambers of commerce. Data exist for visits to approximately 50 key cultural, historical, and natural attractions across the state (OTC 2003).

Each state also has one or more agencies that report on demographic and employment trends, often at the county level. This type of information can be extremely valuable for local planning. The Alaska Department of Labor publishes *Alaska Economic Trends*, available online at www.labor.state.ak.us/trends. This monthly periodical tracks and projects change in population, labor, and key industries in the state. In Washington, such efforts are coordinated by the Office of Financial Management, which hosts a Web site with many useful reports related to population change (www.ofm.wa.gov/). In Oregon, county information is contained on a well-designed interactive Web site ("Oregon Labor Market Information System" www.olmis.org) maintained by the Oregon Employment Department. For each of the 14 Oregon planning regions, there is an overview, a link to the demographic profile (U.S. census data), and statistics on economic and employment trends. Sites such as these contain localized information about social and economic conditions. These insights can help explain why local populations might be expected to grow or not and the types of people living in and moving to each county.

Other regional studies—

In addition to the statewide SCORPs and state agency publications, other regional studies are available. Research stations within the Forest Service often undertake recreation studies across different spatial scales. For instance, the Aldo Leopold Wilderness Research Institute (ALWRI), part of Rocky Mountain Research Station (RMRS), has studied wilderness use at several wildernesses in Oregon, Washington, and Alaska. Most of its studies have been directed at individual wildernesses in the region, rather than the Pacific Northwest as a whole. Nevertheless, some ALWRI studies are useful for understanding wilderness trends (e.g., Cole 1996). Additionally, current ALWRI and Region 6 (Pacific Northwest) wilderness research (Cole and Hall 2005) is regional in scope, describing visitor experiences and attitudes (although not use levels).

In Alaska, the Pacific Northwest Research Station has conducted several relevant studies in recent years. Schroeder et al. (2005) identified trends in recreation and tourism for southeast Alaska, and Brooks and Haynes (2001) discussed these trends in south-central Alaska. Bowker (2001) reported on outdoor recreation trend projections for Alaska through 2020, and Colt et al. (2002) synthesized recreation and tourism data for the Chugach National Forest, which includes interviews with travelers.

Another source of regional information may be private contractors. For instance, Dean Runyan Associates collects tourism expenditure information by county in Oregon and Washington. The 2004 reports (Dean Runyan 2004a, 2004b) provide information on trends (www.deanrunyan.com). There are likely to be other such sources for regions within the Pacific Northwest and Alaska that we did not uncover in researching this report.

Local Studies

Many recreation studies are conducted locally, typically by agency staff or by university researchers. Universities in the Pacific Northwest and elsewhere have been part of many studies relating to recreation on public lands that describe visitor characteristics, activities, and concerns. Managers searching for local studies that have been conducted in the past in their areas should contact one of the universities in the region: Oregon State University, the University of Oregon, Washington State University, the University of Washington, Alaska Pacific University, or one of the University of Alaska campuses. Land grant institutions, given their mandates, often focus on in-state issues and therefore have conducted relevant research. Additionally, studies in the region have been conducted or sponsored by other academic programs from around the country. This is particularly the case with research associated with NVUM. Given the specialized, localized, and often unpublished nature of these studies, we did not attempt to inventory them in any comprehensive way. However, readers searching for localized information should be alert to the possibility that such information may exist. The appendix describes studies we identified in our search of relevant material, although the list is clearly incomplete.

A final important source of current information on recreation–especially water-based activities–in the Pacific Northwest comes from studies conducted for public utilities as part of the requirements for relicensing hydroelectric dams. Companies such as Portland General Electric, PacifiCorp, and others have undertaken extensive investigations of visitor use and characteristics at reservoirs, rivers, and surrounding lands. These reports, which often describe existing use levels, visitor activities, and opinions about facilities and services, are part of the public record and therefore

Table 1—Recreation studies conducted for hydropower relicensing in Oregon and Washington

Hydro project/utility	Year	Study focus
Box Canyon–Pend Oreille	1998	Recreation monitoring–1997 results
Box Canyon–Pend Oreille	1999	Customer mail survey study final report
Carmen Smith–McKenzie River–Eugene Water and Electric Board	Ongoing	Existing recreational use
Chelan Public Utility District	2000	1998-99 Recreational use assessment study report
Chelan Public Utility District	2001	Rocky Reach recreation needs forecast and analysis
Chelan Public Utility District	2000	Rocky Reach 1999-2000 recreational use assessment study
Chelan Public Utility District	2002	Recreation needs forecast and analysis
Clackamas River–Portland General Electric	2004	Various studies of recreation use levels (developed and dispersed camping), visitor survey reports
Idaho Power	2002	General findings from Hells Canyon National Recreation Area: 1999 visitor survey technical report
Idaho Power	2001	Angling on the Snake River in Hells Canyon National Recreation Area
Idaho Power	2001	Hunting associated with Hells Canyon Complex and the Hells Canyon National Recreation Area
Idaho Power–Hells Canyon	2003	Reservoir-related recreational use at the Hells Canyon Complex
Idaho Power–Hells Canyon	2003	General recreation findings from Hells Canyon Complex reservoirs: 1994-2000 onsite interviews and 2000 mail survey
Klamath River–PacifiCorp	2004	Studies of recreation supply, demand, capacity, and needs
North Umpqua	1995	Studies of recreation supply, demand, capacity, and needs
PacifiCorp—Lewis River	2002	Studies of recreation supply, demand, capacity, and needs
Pelton Round Butte–Portland General Electric	2000	Various studies of recreation supply, demand, and needs
Powerdale–Hood River. PacifiCorp	1998	Studies of recreation supply, demand, capacity, and needs
Puget Sound Energy–Baker River	2004	Visitor survey
Puget Sound Energy–Baker River	2004	Recreation needs analysis
Skagit River–Seattle City Light	1991	Report on recreation resources

available to resource managers (table 1). They can be obtained from the Hydropower Licensing division of each utility. Most studies are on file with the Federal Energy Regulatory Commission and are available electronically in a searchable database (http://elibrary.ferc.gov/idmws/search/fercgensearch.asp). In Oregon, studies have been done for the Clackamas River, Pelton Round Butte (Lake Billy Chinook and Lake Simtustus), Hood River, North Umpqua River, Klamath River, Hells Canyon, and Carmen Smith Reservoir. In Washington, studies have been done on the Chelan River, Box Canyon (on the Pend Oreille River), Baker River, Lewis River, and Skagit River.

What Does Existing Information Say About Recreation Activities and Trends?

The 21st century has brought many challenges in recreation management. Advancements in technology, a concern for fitness, and more stress in people's daily lives

are factors leading Americans to adventure into the outdoors. At the same time, less time for relaxation, changing family structures, and demands on personal time are altering historical patterns of recreation use. Looking at trends in the entire recreational picture over time is vital to balancing supply and demand and provides perspective on challenges that lie ahead. In the sections below, we present the available information on recent trends in activity participation. Although it is important to understand which activities appear to be increasing and decreasing and to consider emerging activities, we recognize that it is also critical to consider the attitudes of outdoor recreationists and ask what particular activities they prefer and why they prefer them. This level of analysis, however, is beyond the scope of our report.

Issues in Evaluating Recreation Trend Data

Obtaining a clear, accurate perspective on trends in recreation participation can be difficult. For one, different studies use different methods, and the effects of method variation on responses are often unknown. Different methods used in Oregon, Washington, and Alaska include phone interviews, in-person interviews, and mail surveys. Some surveys only interview participants who are 18 years or older, whereas others include children as young as 6. Some studies ask people to report on their own individual behavior, whereas others ask for information on some or all household members. Some studies ask people to recall their activities over the course of a year, whereas others restrict the period of recall to only a few months. Different studies classify activities differently, so it can be difficult to know whether data for the "same" activity are really comparable. Response rates are not always reported, and studies generally do not address nonresponse bias, which could potentially have a major effect in cases where response rates are low. All of these issues make extrapolating from a sample to a population quite complex and create difficulties in comparing results between studies.

Obtaining a clear, accurate perspective on trends in recreation participation can be difficult. For one, different studies use different methods, and the effects of method variation on responses are often unknown.

Aside from the issues surrounding the methods used to obtain and analyze data, interpreting trends can be challenging owing to substantial fluctuations in activities from year to year. The impression of trends for a given activity may depend on the timeframe examined. A few-year snapshot may convey one impression, whereas a longer series of data may indicate the opposite. For example, fishing appeared to decline in the mid-1990s, but according to Roper's annual study, now in its 10th year, participation rebounded in 1999 and has remained at or higher than 1994 levels. Year-to-year trends are affected by many factors, including the economy, weather, the extent of wildfires, and changes in technology, to name a few. Examining multiple sources and looking across longer time horizons to discern trends is strongly recommended.

Aside from the issues surrounding the methods used to obtain and analyze data, interpreting trends can be challenging owing to substantial fluctuations in activities from year to year.

Interpretation of results also depends on whether data are presented as the **number** of participants in a given activity or as a **participation rate**. An activity with a stable per capita participation rate will increase in the overall number of participants over time, so long as the population grows. Activities that show stable rates of participation actually bring more visitors over time in areas where population is growing. In our discussion below, we try to use the number of participants where possible because this metric seems most relevant to resource managers. A notable exception is the data from RoperASW, which are presented as per capita participation rates.

Finally, there is the matter of which measure of participation should be reported. Most studies report the number of people who participated at least one time per year, and that is the information we present in our tables. However, this overlooks the important issue of visitation frequency. Visitation at recreation sites is not only affected by the number of people who recreate, but also by how often they do so. If frequency of participation changes, trends inferred from simple participation rates will be misleading.

National Trends in Recreation–Activity Participation

Recognizing all these limitations, we synthesize findings from several sources to draw conclusions about participation and likely future trends for different outdoor recreation activities that take place on national forest lands in Oregon, Washington, and Alaska. Although past trends can be reasonably accurate, making future projections is risky (Kelly and Warnick 1999). We encourage readers using this information to consider their local circumstances carefully and be alert to any unforeseen social or economic conditions that may cause participation to change or diverge from the patterns we report.

Our major sources of information on trends include recent updates from the NSRE issued by the Southern Research Station and posted on its Web site (at www.srs.fs.usda.gov/), along with summaries published by Roper (at www.funoutdoors.com/research and www.ropercenter.uconn.edu/roper_trends.html), the OIF (at www.outdoorindustry.org/), the NSGA, and the SGMA. Several sources, including Cordell et al. (1999), provide trend information for years prior to 1998. We did not include that information here, because it has been widely published, and we felt that it was more important to summarize recent findings. However, at the national level, the only consistent statistical projections we could find were from Bowker et al. (1999), based on the 1994-95 NSRE, and we use those in our discussion of likely trends.

Water-based recreation activities—

Water is critical to many activities, and the presence of water is often considered one of the most important recreational attributes (Kakoyannis and Stankey 2002). Among water-based activities, according to the NSRE, the most popular are nonpool swimming (the question asked specifically about "natural waters" such as lakes or streams) and boating activities in general (fig. 1). According to these numbers, both activities seem to be on the rise in recent years. RoperASW (2004) data also indicate that swimming is increasing in popularity (fig. 2).

Water is critical to many activities, and the presence of water is often considered one of the most important recreational attributes.

Today, more than 60 million adult Americans participate in motorboating at least once per year, according to the NSRE (fig. 3). The NSGA estimates of participation among people age 7 years and older are much lower, however, and the RoperASW data (fig. 2) show a much lower participation rate (10 percent) than the NSRE rate (approximately 30 percent). Data reported by Kelly and Warnick (1999) show rates of motorboating more similar to the Roper studies (6 to 9 percent, depending on age group) than to the NSRE studies. The disparity in estimates among sources is quite evident in figure 3, and this tendency occurs for most activities we studied. The fact that studies (e.g., NSGA, SGMA) that include youth report much lower

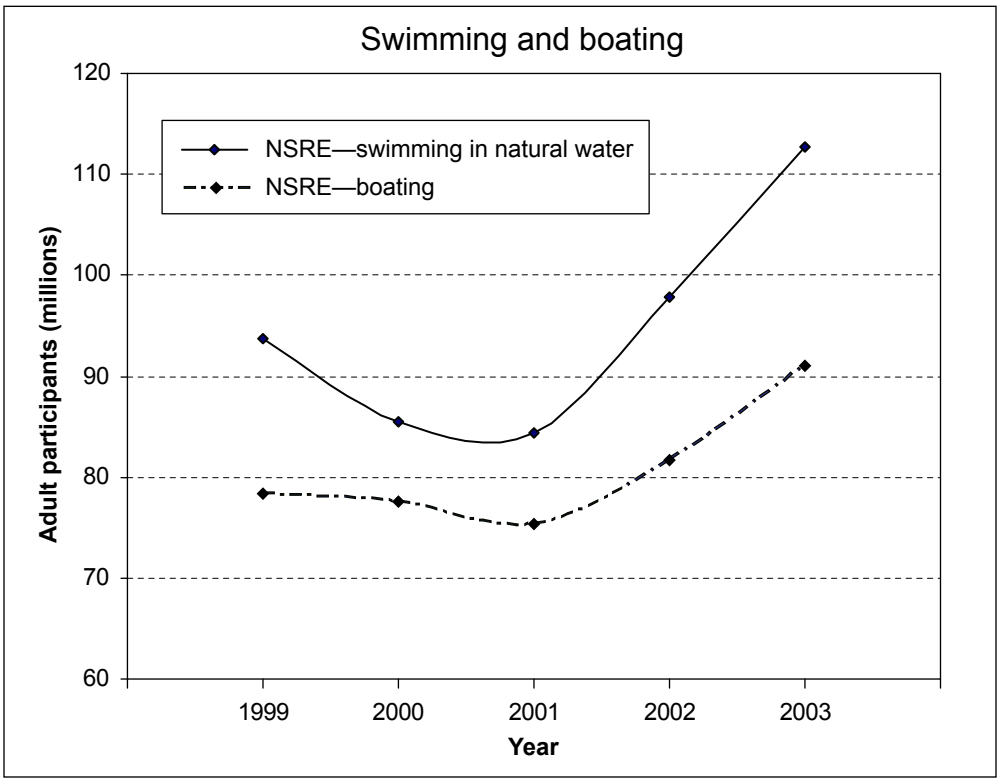

Figure 1—National trends in participation in swimming and boating. NSRE = National Survey on Recreation and the Environment.

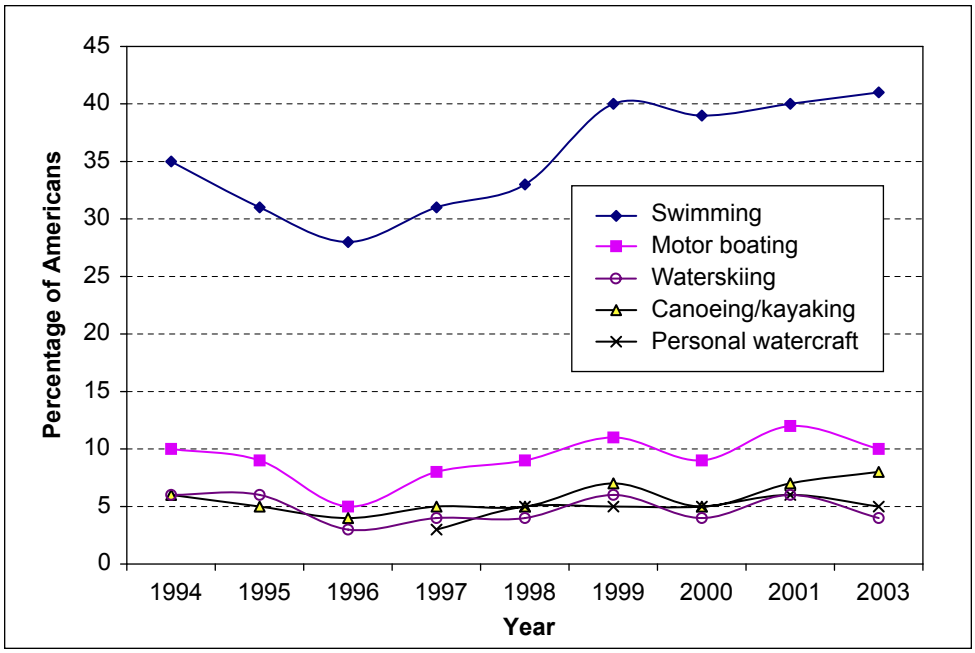

Figure 2—Percentage of Americans participating in water-based activities (RoperASW 2004).

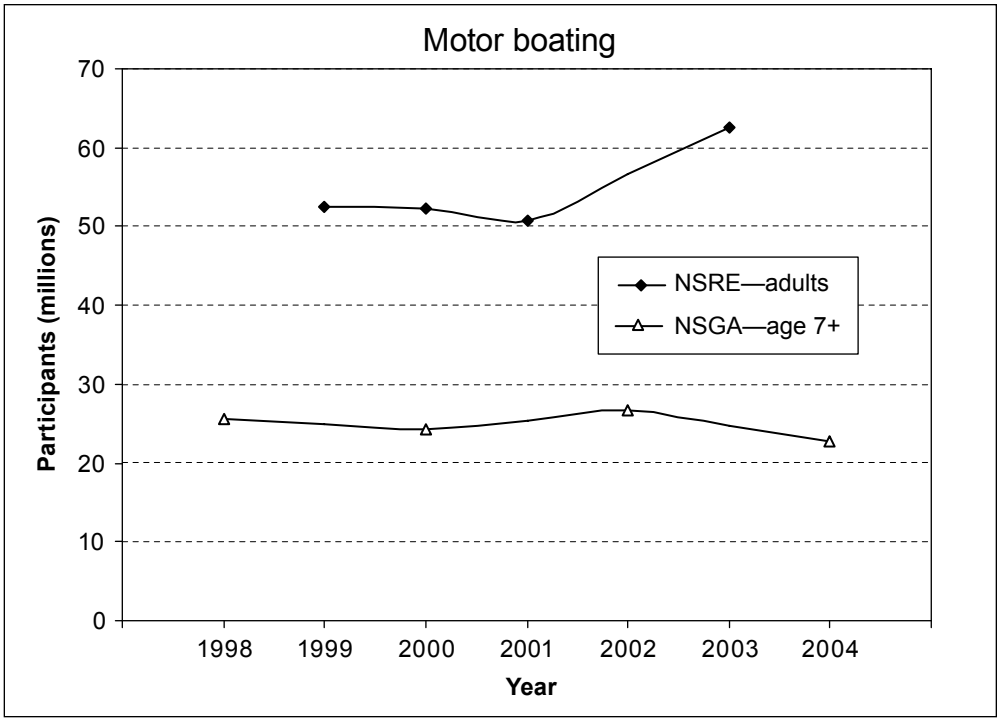

Figure 3—National trends in participation in motor boating. NSRE = National Survey on Recreation and the Environment, NSGA = National Sporting Goods Association.

rates (often only half) than the NSRE is noteworthy. All sets of figures, however, indicate that participation in motor boating has remained relatively stable, although the RoperASW data show a dip around 1996 and a rebound since then.

Jet skiing, water-skiing, and canoeing are less popular activities according to all data sources (figs. 4 through 6). The SGMA data show that jet skiing has been stable and may be declining recently. RoperASW data (fig. 2) depict a generally stable rate of participation for all boating since 1998. The NSRE data also show stability, but an upward trend recently in motorboating.

The NSRE data show waterskiing to have been declining slightly between 1999 and 2002 (fig. 5), and industry estimates from both NSGA and SGMA also suggest an overall decline. RoperASW data show fluctuations between 3 and 6 percent participation (fig. 2), depending on the year, with no overall directional trend.

Estimates of canoeing show this activity to be relatively stable in participation over the past few years (fig. 6). However, specific numbers generated by the two industry-sponsored studies are quite different in magnitude, and the differences are opposite to what one would expect given the different ages covered in the two studies. RoperASW data combine canoeing with kayaking, and by these estimates, participation has increased slightly since 1994.

Whitewater sports remain quite specialized with low overall participation rates. Industry estimates of the number of kayakers from OIF and SGMA are lower than

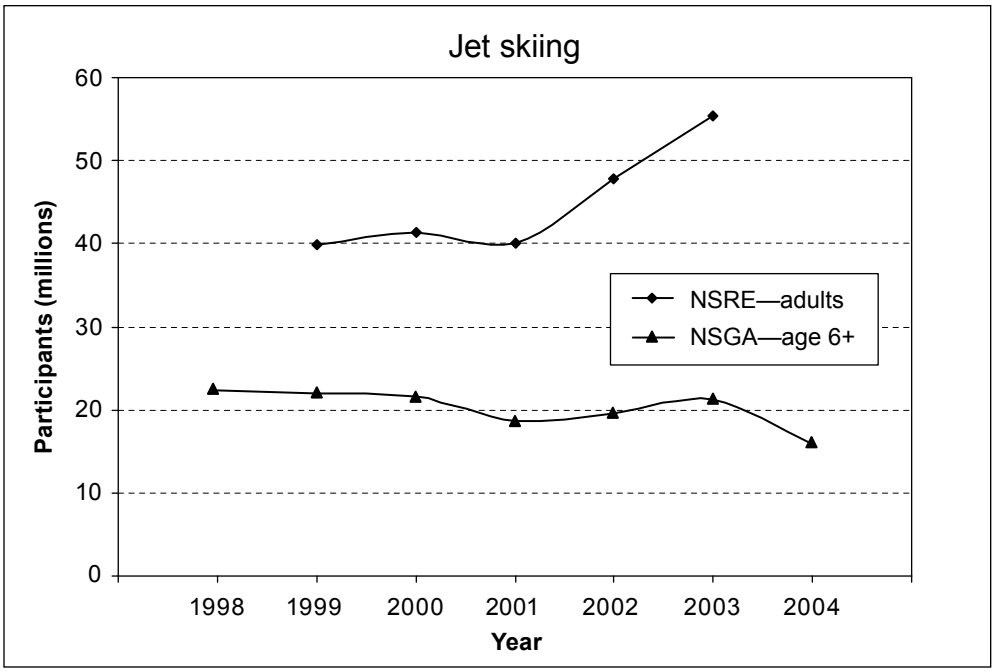

Figure 4—National trends in participation in jet skiing. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association.

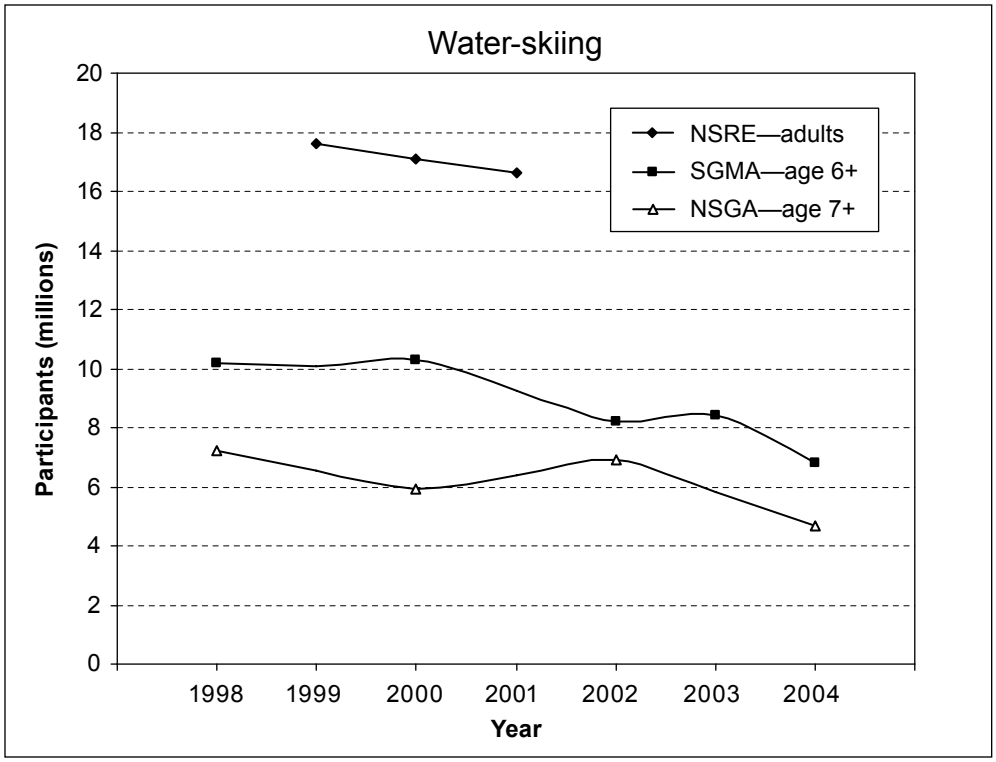

Figure 5—National trends in participation in water-skiing. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association.

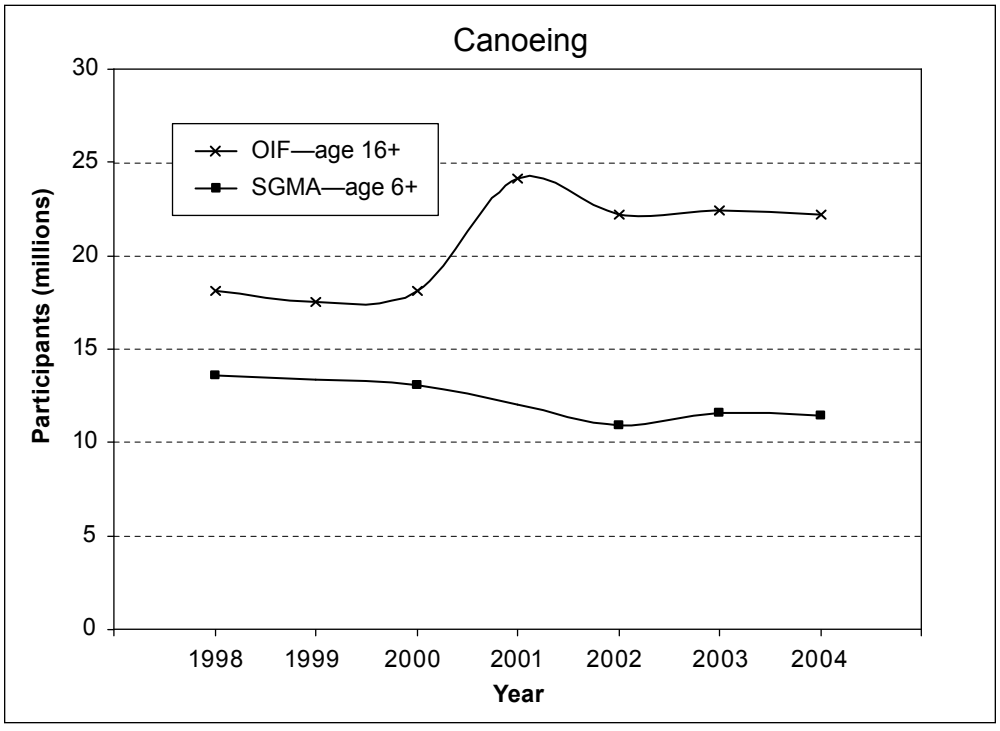

Figure 6—National trends in participation in canoeing. SGMA = Sporting Goods Manufacturers Association, OIF = Outdoor Industry Foundation.

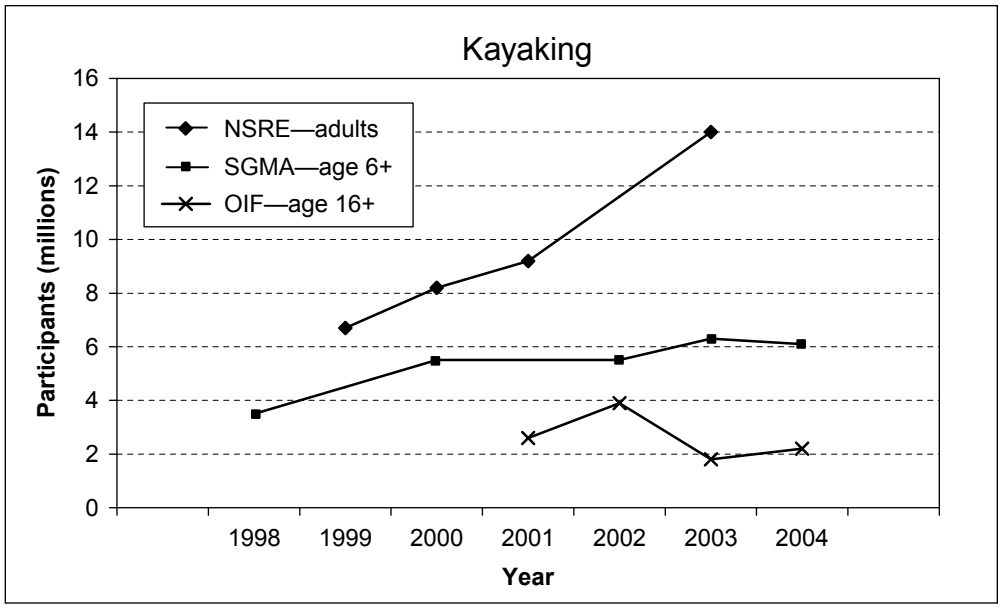

Figure 7—National trends in participation in kayaking. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, OIF = Outdoor Industry Foundation.

the estimates provided by the NSRE (fig. 7). This might have to do with the wording of the questions asked (which forms of kayaking are included), because the OIF study specifically stipulates whitewater kayaking. The NSRE data show a continued increase in kayaking, but the SGMA and OIF data suggest a leveling recently. Industry data on whitewater rafting show participation to be largely stable since 1998, with a possible decline since 2001 (fig. 8).

The 1994-95 NSRE provided projections of participation, accounting for anticipated changes in demographics and supply (Bowker et al. 1999). These projections were indexed to 1995, meaning, for instance, that an activity with an index of 1.5 in the year 2020 was expected to have 1.5 times as much participation as in 1995. In the short term (between 1995 and 2005), the NSRE projected increases in the number of swimmers of 19 percent, in the number of motor boaters of 22 percent, in the number of rafters of 20 percent, and in the number of kayakers/canoeists of 21 percent. Over 20 years, these projections were 29 percent (swimming), 32 percent (motor boating), 30 percent (rafting), and 31 percent (canoeing/ kayaking). As evident in figure 9, based on these somewhat dated projections, the number of activity days for all water-based recreation was expected to increase through 2050, with motor boating showing the most rapid increases. Indeed, the projected tripling of motor boating is the largest increase of any activity we studied. Actual trends in activities, particularly those dependent on fuel like motor boating, could vary considerably from projections.

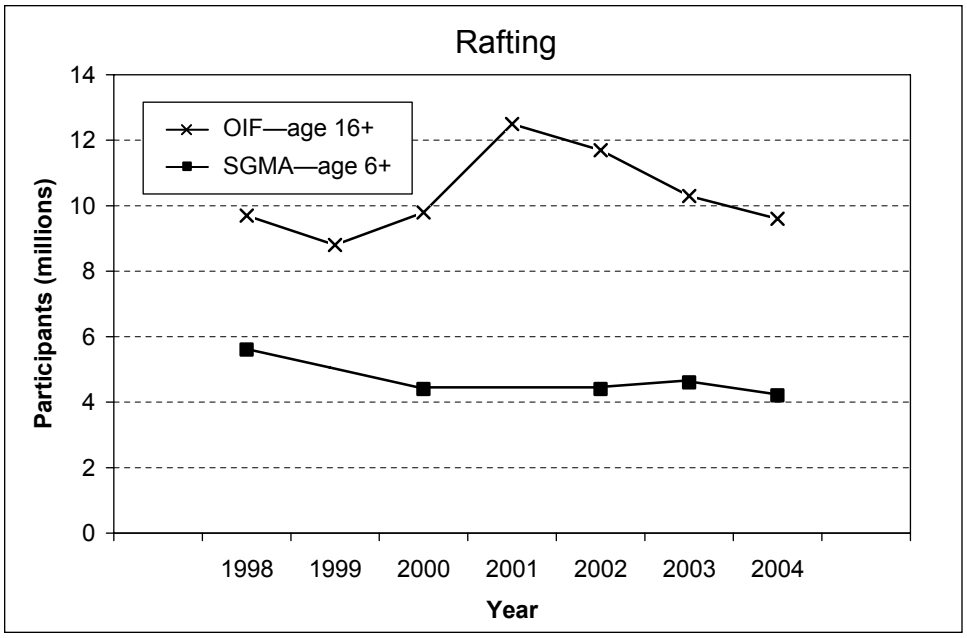

Figure 8—National trends in participation in rafting. SGMA = Sporting Goods Manufacturers Association, OIF = Outdoor Industry Foundation.

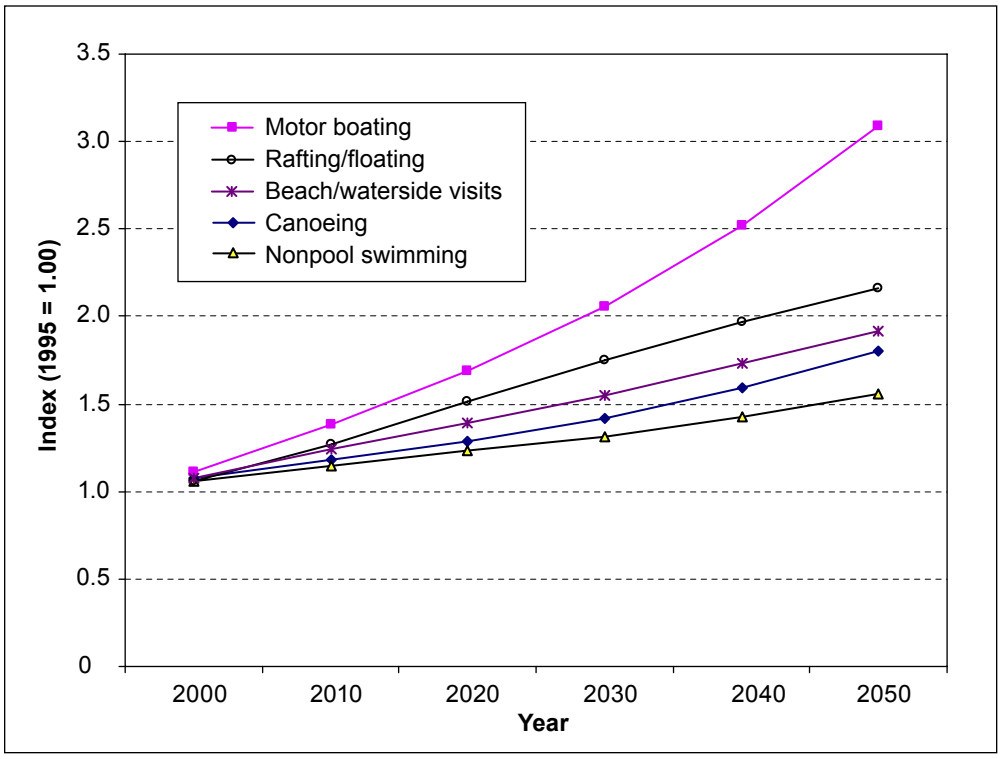

Figure 9—Projected change in number of activity days, water-based activities (Bowker et al. 1999).

Hunting, fishing, and wildlife-related recreation—
The most recent data from the NSRE show that nearly 79 million Americans enjoy some form of fishing, with most of these being freshwater anglers (fig. 10). The SGMA (2004) estimates for Americans 6 years of age and older indicated nearly 48 million participants in all forms of angling in 2004, whereas the NSGA estimated the number at just over 41 million. Both of these estimates are much lower than NSRE numbers, despite their inclusion of children. According to the Fish and Wildlife Service surveys, from 1955 to about 1990, the growth in angling outpaced population growth in the United States, but between 1996 and 2001 the rate of angling declined below the rate of population growth, and there was a net decline of 3 percent in the total number of anglers. Sources indicate opposite trends for recent years. For example, the RoperASW data, spanning 10 years, suggest a decline in angling around 1997 but a solid rebound since then (fig. 11); the NSRE data suggest an increase; and the SGMA data suggest a decline (fig. 10).

Nearly 79 million Americans enjoy some form of fishing, with most of these being freshwater anglers.

Two industry sources also provide contradictory impressions of the trend in fly fishing (fig. 12). According to the SGMA, this activity has been in decline, but according to the OIF, it has increased.

According to the NSRE, nearly 26 million Americans engaged in some form of hunting in 2003, with big game hunting making up a little more than half of all hunting (fig. 13). The SGMA (2005) estimated a much lower number–15.2 million participants in rifle or shotgun hunting in 2003–while the NSGA estimated the number of people 7 years of age and older who hunted with firearms to be 17.7 million in 2004. Again, both numbers are much lower than the NSRE estimates. According to the longer term Fish and Wildlife Service studies, the number of hunters increased until about 1975 and leveled off until about 1996, but then declined 7 percent by 2001. The RoperASW studies, however, show the hunting participation rate to be stable at 8 percent since 1999 (fig. 11). The NSRE studies show that, since 1999, participation has shown a slight increase in hunting, except for a temporary decline in 2001. In contrast, the SGMA has reported a steady, although slight, decline in the number of hunters since 1998.

According to the NSRE, more people watch wildlife than hunt (fig. 14). Often the measures of viewing wildlife include viewing backyard wildlife, but the NSRE distinguishes between birdwatching–undertaken by 39 million Americans in the 2003-04 sample–and viewing other wildlife (shown in fig. 14). Most other sources agree that wildlife viewing has increased recently. For example, the Fish and Wildlife Service estimated an increase of 5 percent in the number of wildlife watchers between 1996 and 2001, whereas the NSRE reported that the number grew from 87 million in 1999 to more than 121 million in 2003, an increase of 39 percent.

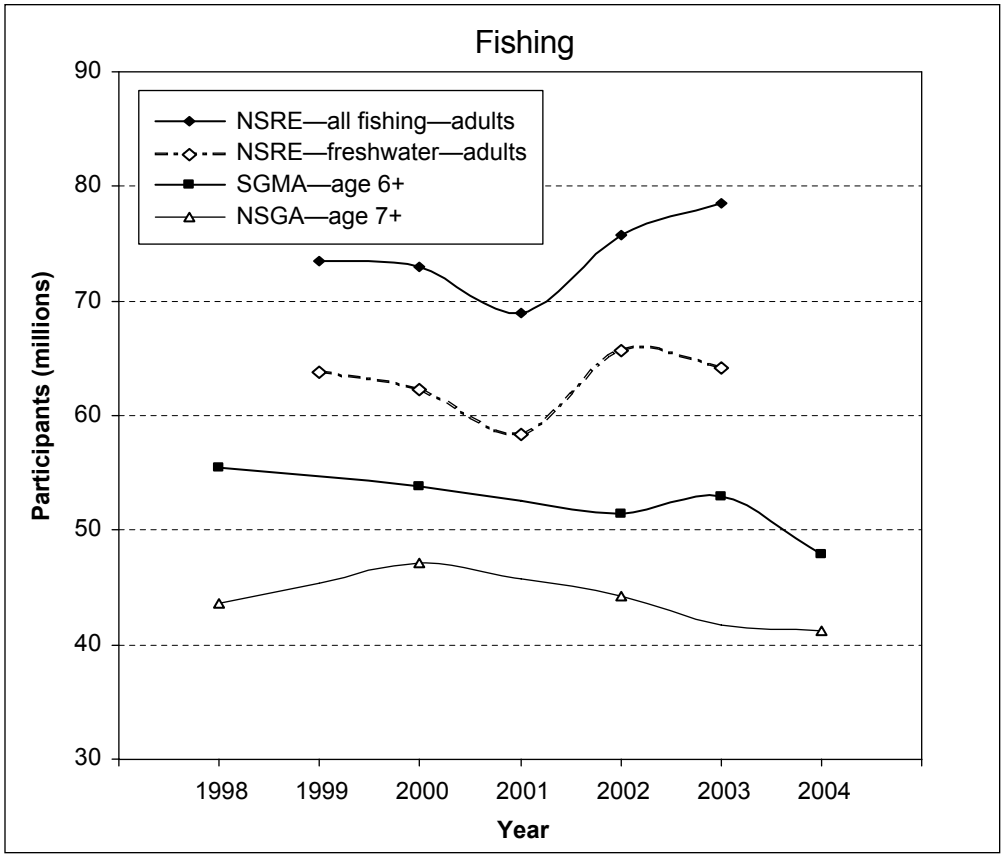

Figure 10—National trends in participation in fishing. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association.

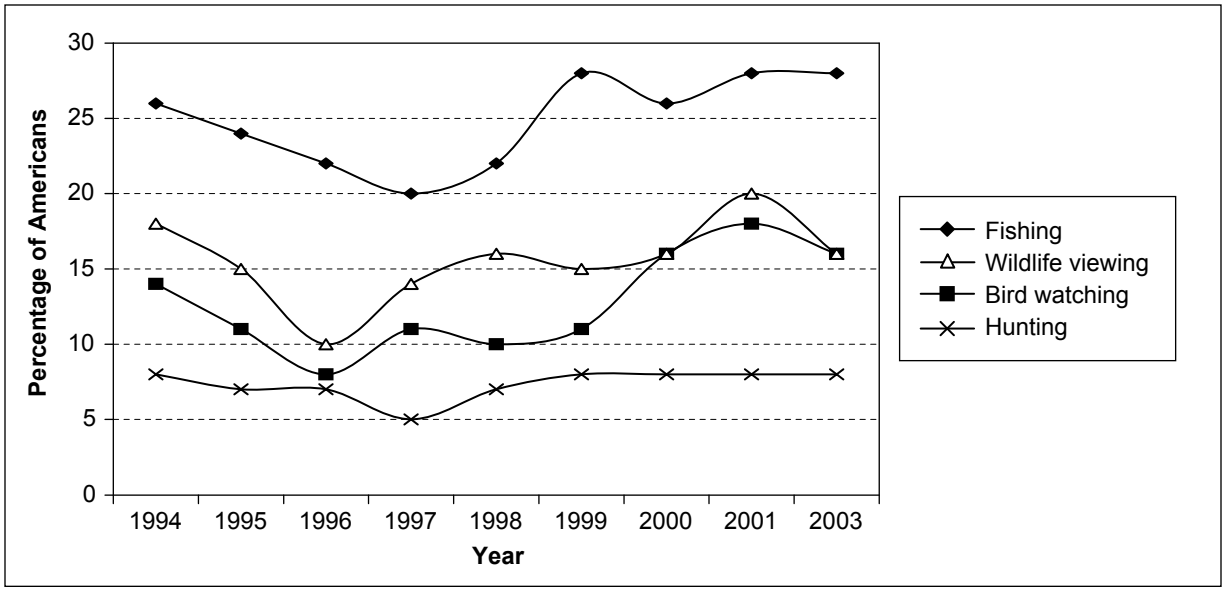

Figure 11—Percentage of Americans participating in wildlife-related activities (RoperASW 2004).

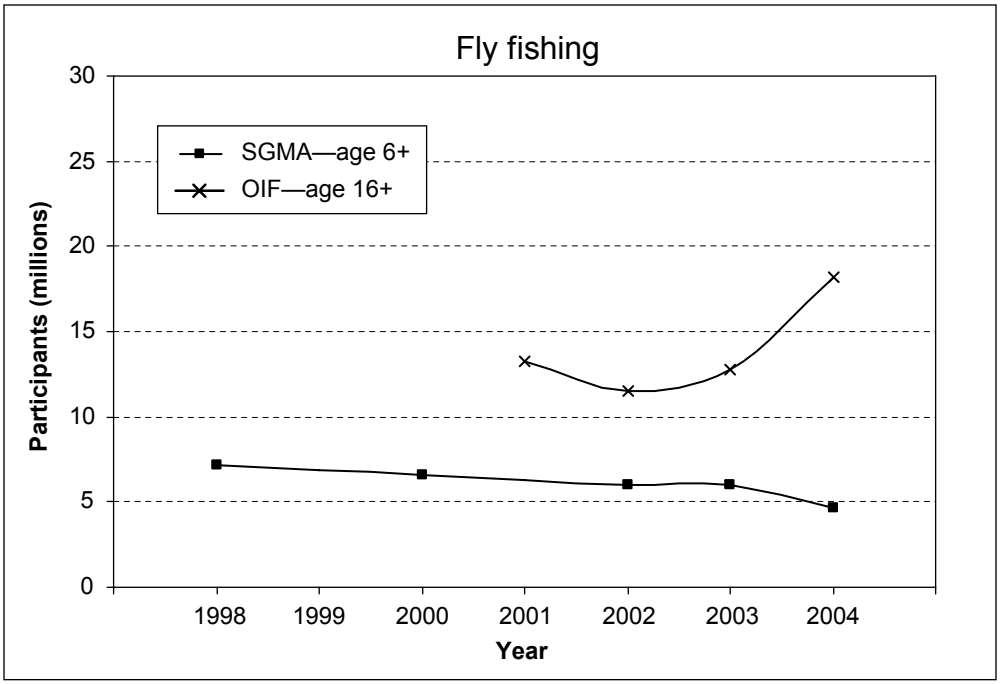

Figure 12—National trends in participation in fly fishing. SGMA = Sporting Goods Manufacturers Association, OIF = Outdoor Industry Foundation.

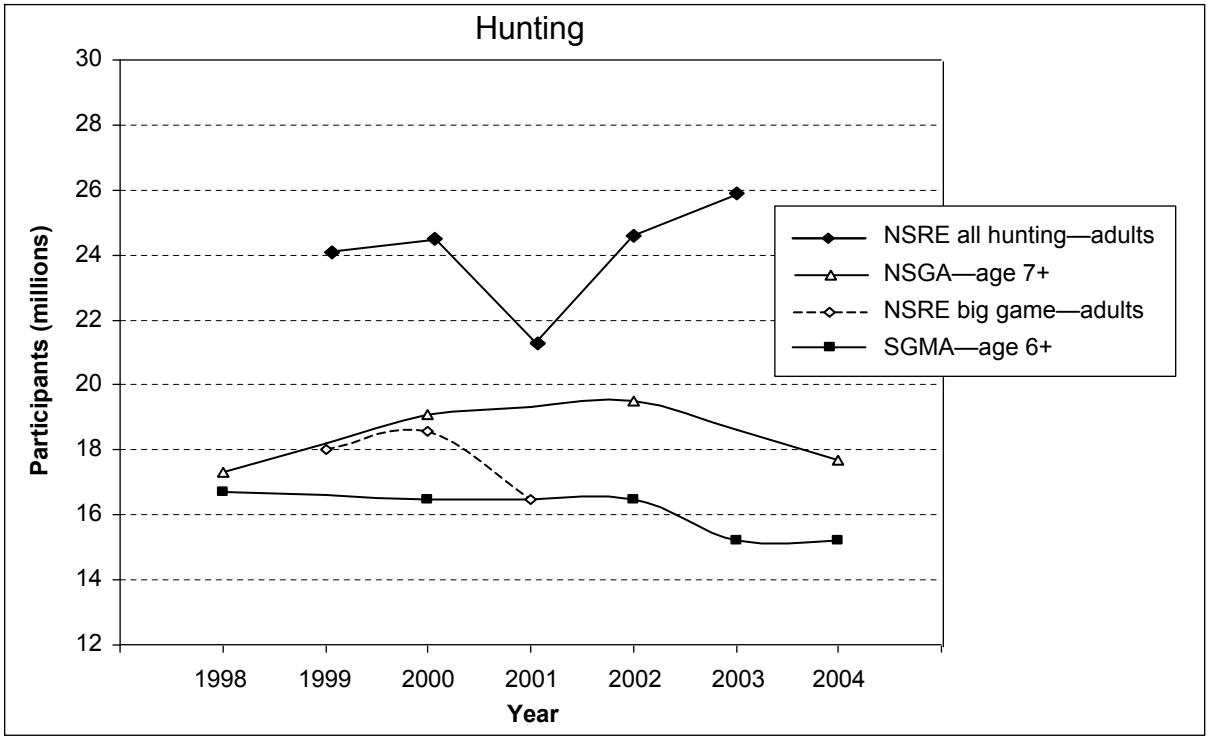

Figure 13—National trends in participation in hunting. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association.

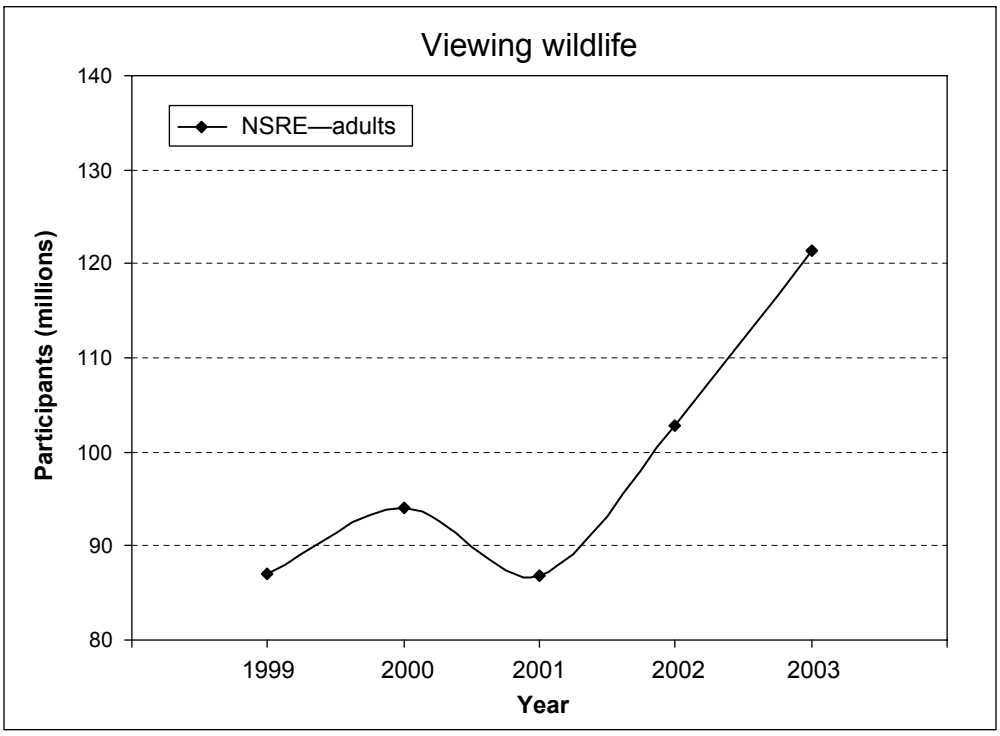

Figure 14—National trends in participation in viewing wildlife. NSRE = National Survey on Recreation and the Environment.

According to the OIF, however, bird watching (more than ¼ of a mile from home) has declined steadily from 18.3 million participants in 2001 to 15.1 million in 2004.

Hunting and fishing have received considerable attention in the research literature. The Fish and Wildlife Service's National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USDI FWS and U.S. Census Bureau 2002) provides an independent check on the figures reported in other studies. The NSRE estimates of wildlife-related recreation differ significantly from the Fish and Wildlife Service's more extensive surveys. According to the Fish and Wildlife Service, in 2001, 66 million Americans viewed wildlife (compared to the estimate of 87 million from the NSRE), 34 million went fishing (versus the NSRE estimate of approximately 69 million), and 13 million hunted (compared to the NSRE estimate of nearly 21 million). The FWS data are more similar to the SGMA estimates than to the NSRE estimates. These large discrepancies are unexplained.

Extractive wildlife-related recreation (e.g., fishing and hunting) is generally not expected to increase in the near future (Cordell et al. 1999, Kelly and Warnick 1999). Hunting, according to the 1994-95 NSRE, was expected to decline 15 percent over 10 years and 21 percent over 20 years (Bowker et al. 1999). However, the 1994-95 NSRE projected a 12-percent increase over 10 years and a 20-percent increase over 20 years in the number of anglers. As seen in figure 15, Bowker et al.

(1999) expected wildlife watching to increase through 2050, hunting to decline, and angling to increase slightly (near the rate of population growth).

Trail-based or road-based activities—

The NSRE estimates that nearly 80 million Americans enjoy bicycling, and the OIF estimates a similar number of participants (fig. 16). However, the SGMA (2005) estimated that 52.0 million Americans over the age of 5 participated in "recreational bicycling" in 2004 and the NSGA estimated only 40.3 million participants, numbers much lower than the NSRE and OIF estimates. Although some of the difference may be due to the wording of survey questions, these differences are quite large. Most of the estimates, including those from RoperASW (fig. 17), however, agree that the number of general bicyclists is relatively stable.

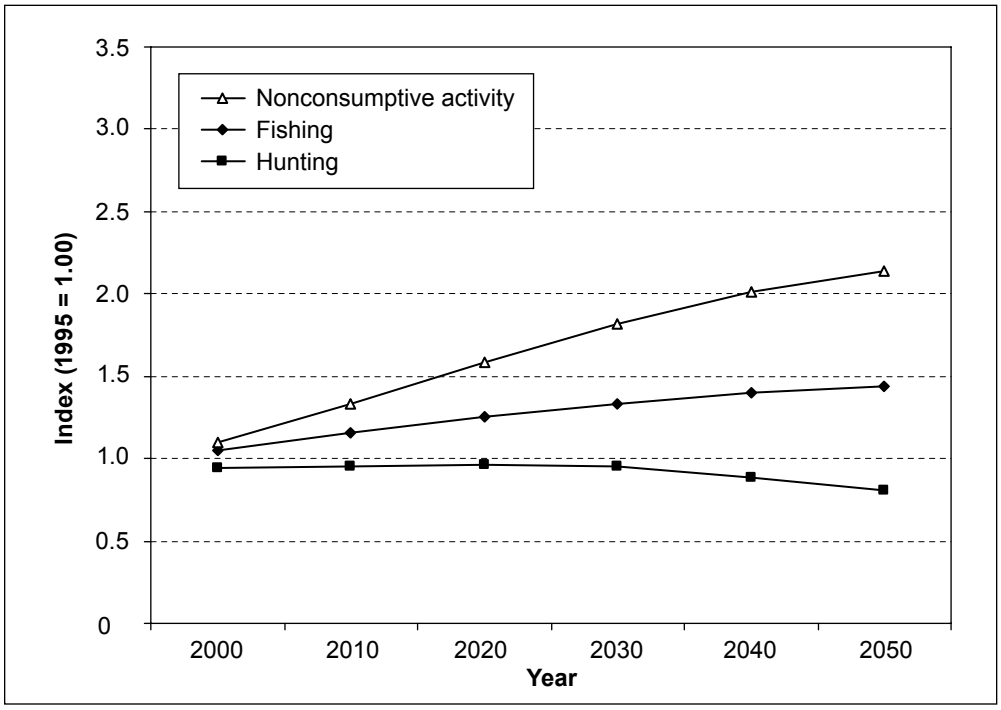

Figure 15—Projected change in number of activity days, hunting, fishing, and wildlife-related activities (Bowker et al. 1999).

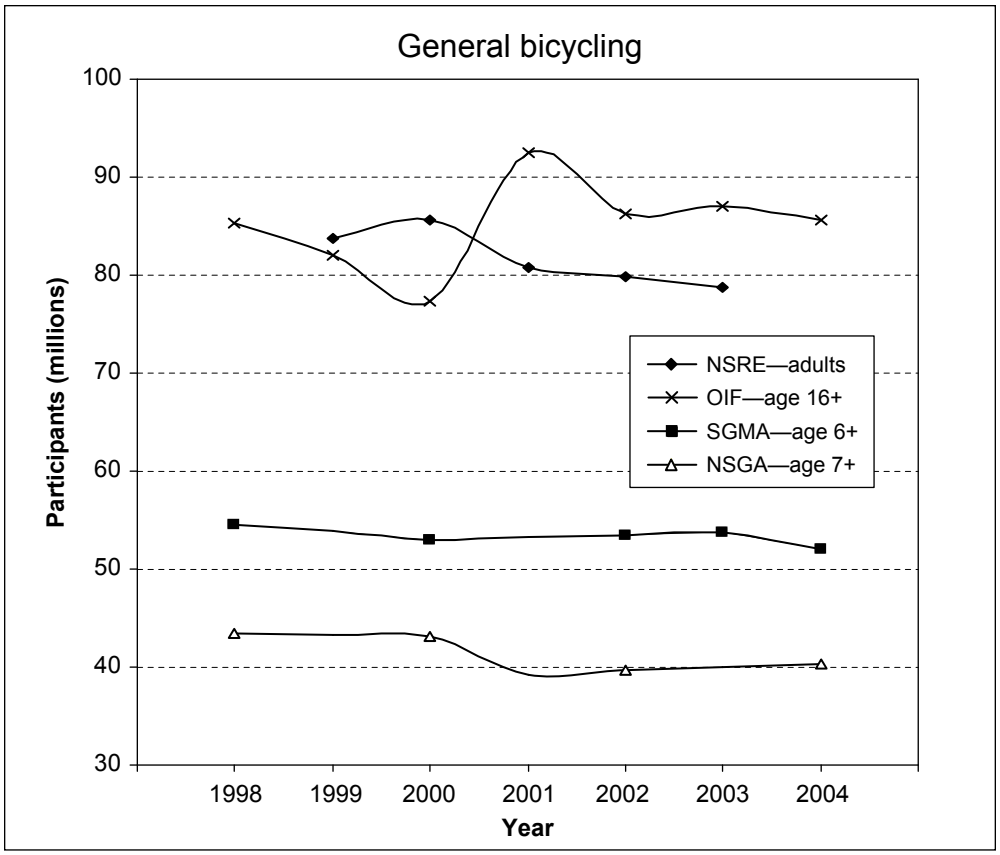

Figure 16—National trends in participation in bicycling. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association, OIF = Outdoor Industry Foundation.

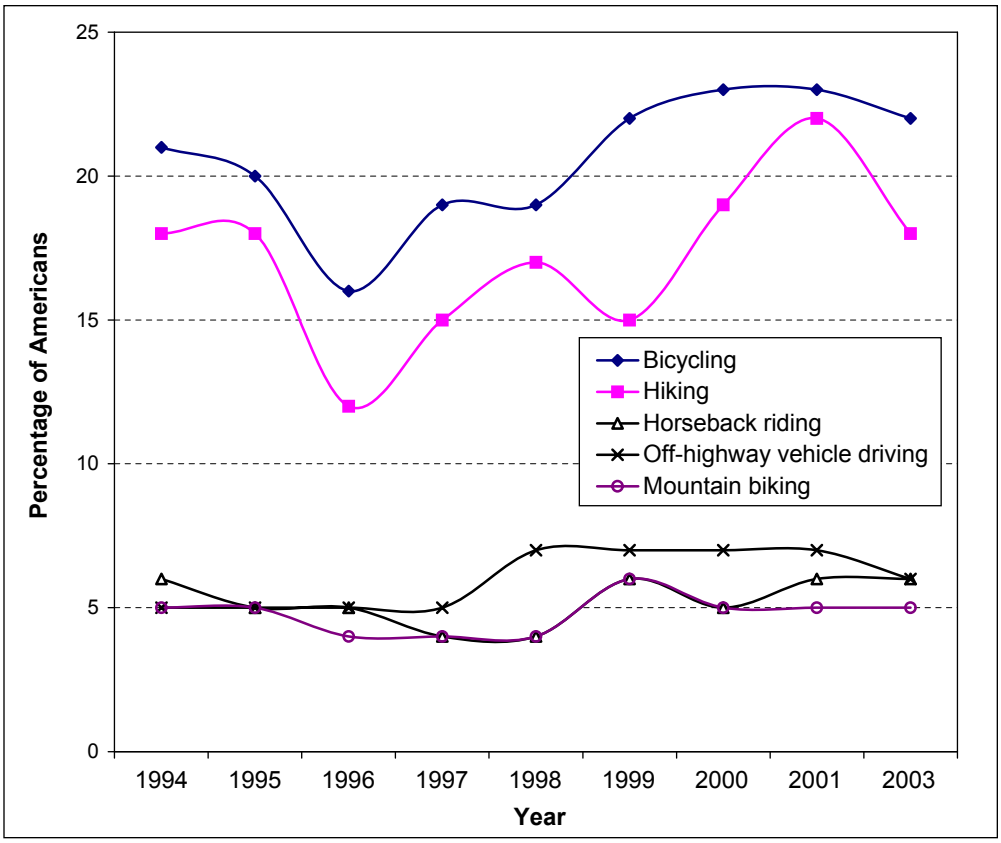

Figure 17—Percentage of Americans participating in trail-based or road-based activities (RoperASW 2004).

General bicycling includes bicycling around town and on roads, and, according to the NSRE, mountain biking accounts for about half of the all biking participation (fig. 18). For this activity, OIF estimates are higher than the NSRE numbers, but NSGA and SGMA estimates are substantially lower. The SGMA estimated only 5.3 million mountain bikers in 2004, about 10 percent of all bicyclists, while two sources (NSRE and SGMA) indicate a slight long-term decrease in mountain biking. The OIF, NSGA, and RoperASW studies suggest stable participation rates, despite some annual fluctuations.

Hiking is also quite popular, with nearly 83 million Americans saying they day hiked in 2003, according to NSRE estimates (fig. 19). The OIF studies (which ask about "hiking" in general) generate estimates reasonably close to the NSRE numbers, but in the SGMA 2004 report, only about 41 million Americans were estimated to participate in either day or overnight hiking. The NSGA data, which appear to include all forms of hiking, generated much lower numbers than any other study. NSRE data show large annual variations in participation, but the industry sources all depict steady participation in hiking.

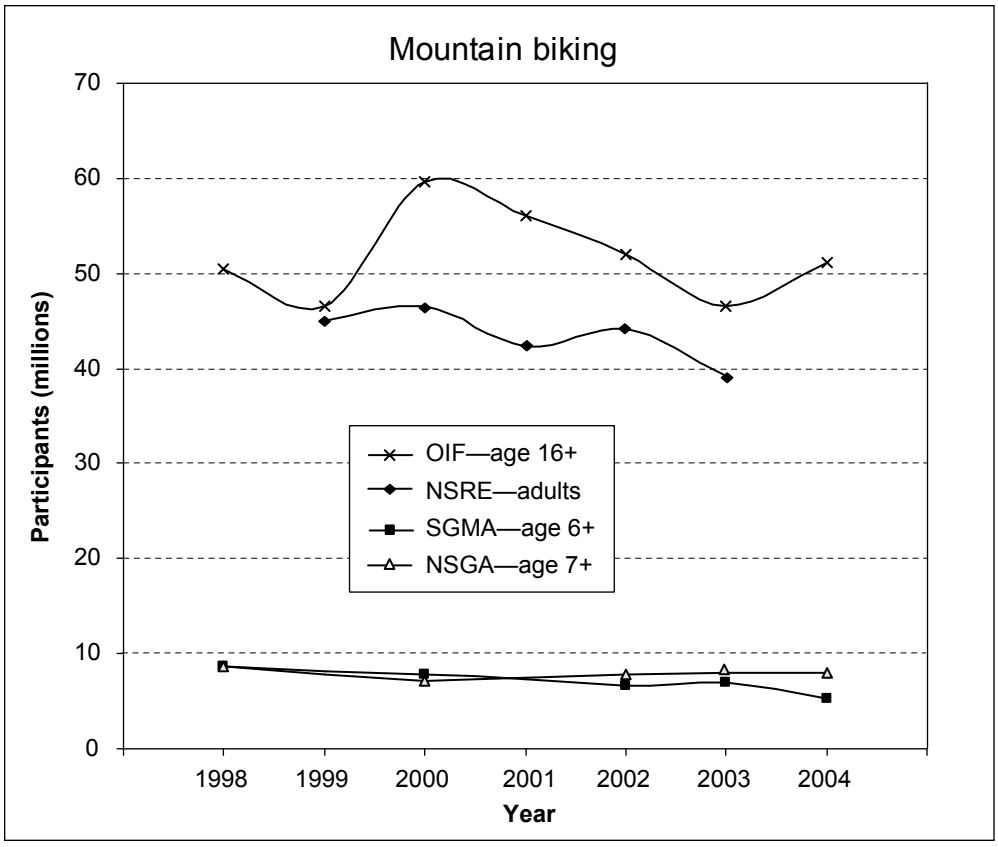

Figure 18—National trends in participation in mountain biking. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association, OIF = Outdoor Industry Foundation.

The NSRE estimates indicate that more adults drive off-highway vehicles than go mountain biking (fig. 20). Few sources track OHV use over time, however, and estimates differ depending on the type of activity included (e.g., 4-wheel driving vs. OHV). RoperASW data indicate a very small increase in participation rates nationally over the past 10 years (fig. 17), while the NSRE reports growth of 2 to 4 percent per year (USDA FS 2004b).

Horseback riding remains a small proportion of the overall use of trails or roads (fig. 21). The SGMA estimate of 15 million horseback riders in 2004 is similar to the NSRE estimate. Both sources suggest stable numbers of participants, with perhaps a slight decline recently.

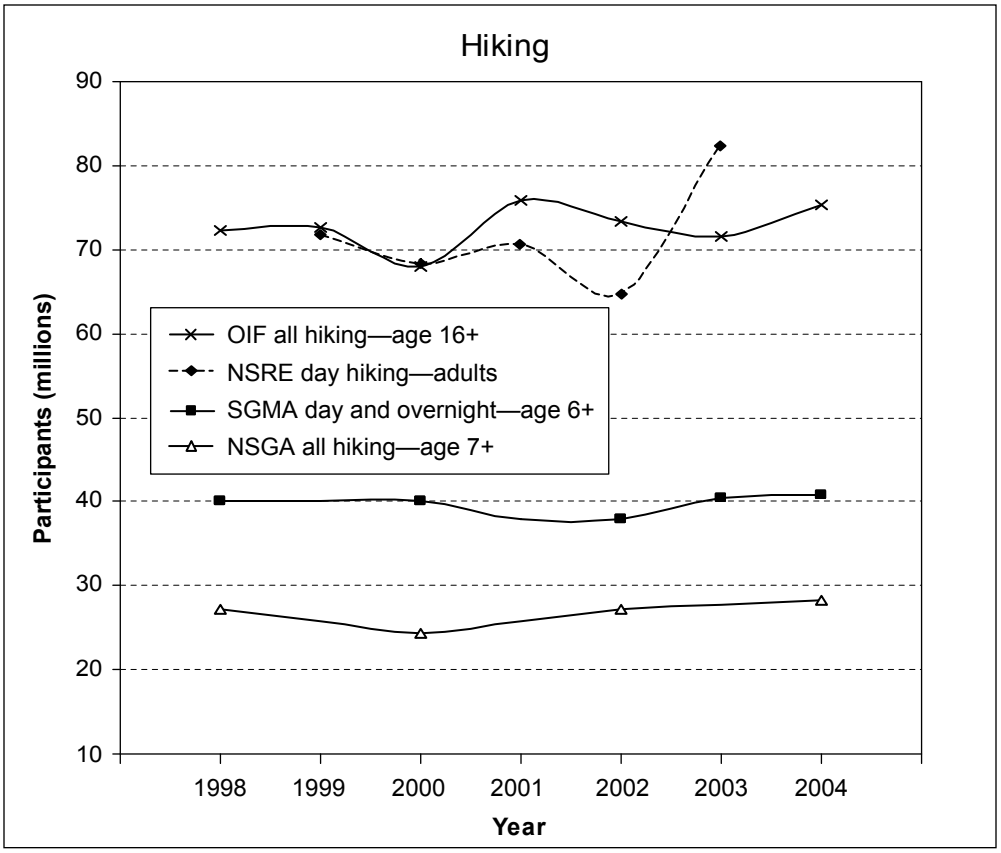

Figure 19—National trends in participation in hiking. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association, OIF = Outdoor Industry Foundation.

Trail running is an activity poorly documented in most studies, yet recent OIF surveys have included this activity and find participation rates nearly equal to those of mountain biking, at 39.5 million participants in 2004 (OIF 2005). However, the SGMA, which has asked about trail running since 1998 shows much lower rates of participation, between 5 and 7 million (fig. 22). Those data indicate a slow, steady increase in the popularity of trail running.

There has been some attention to likely future trends in trail and road activities. Kelly and Warnick (1999) believed that mountain biking is a niche activity that had reached its maximum participation levels by approximately 2000, and this seems to be reflected in figure 18. However, the 1994-95 NSRE expected growth near 2 percent per year, leading to a 19 percent increase over 10 years and a 29 percent

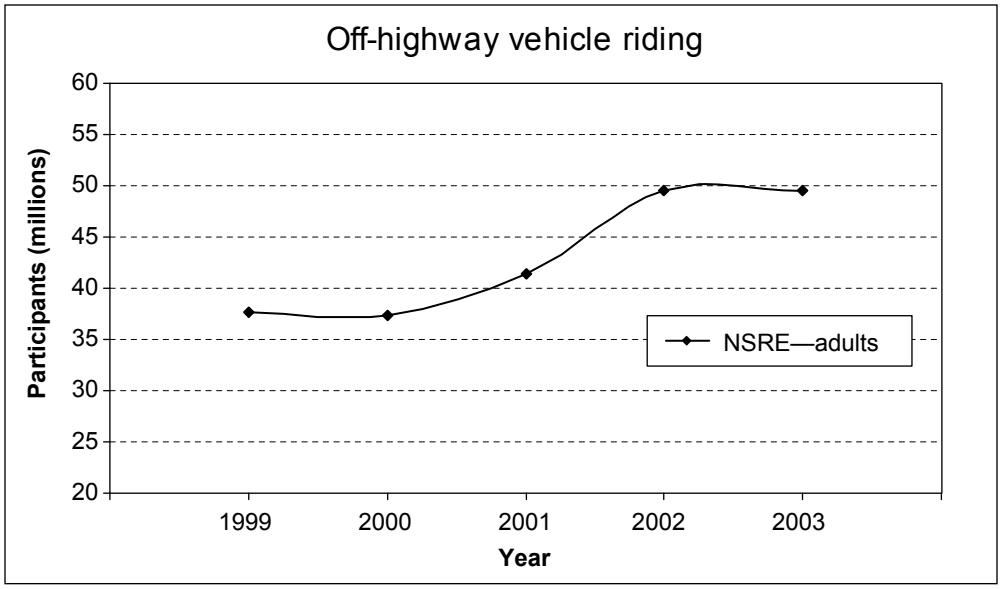

Figure 20—National trends in participation in off-highway vehicle riding. NSRE = National Survey on Recreation and the Environment.

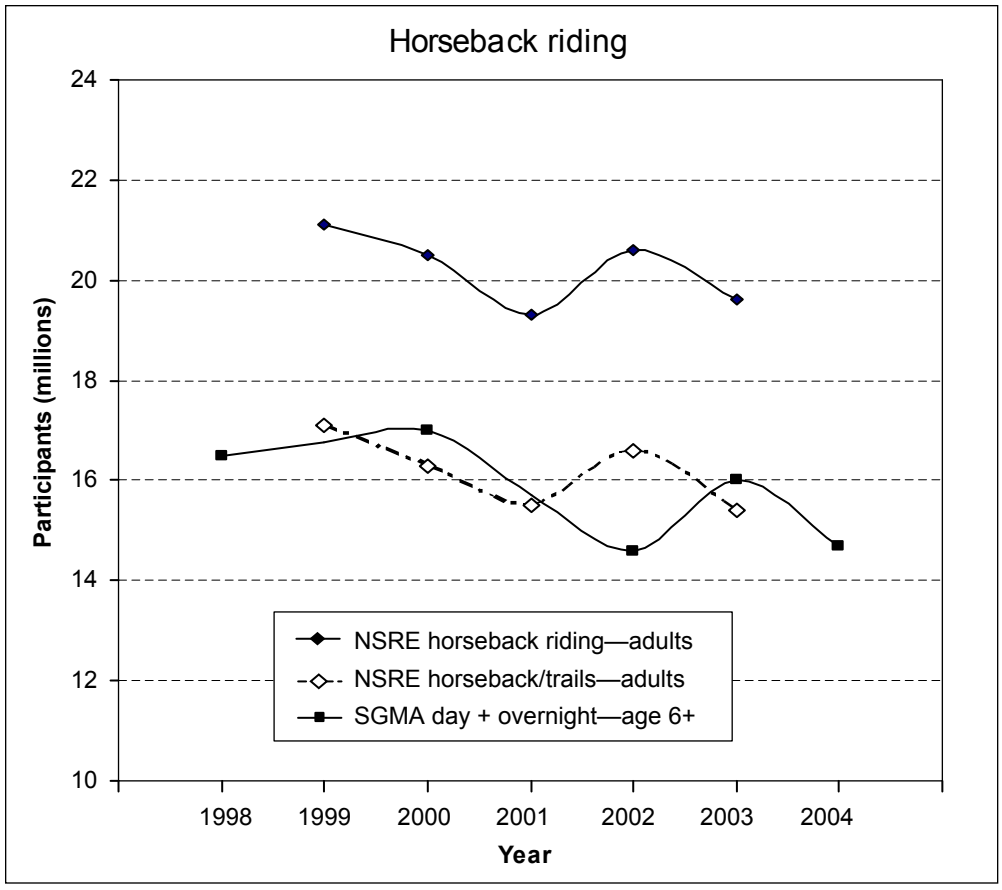

Figure 21—National trends in participation in horseback riding. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association.

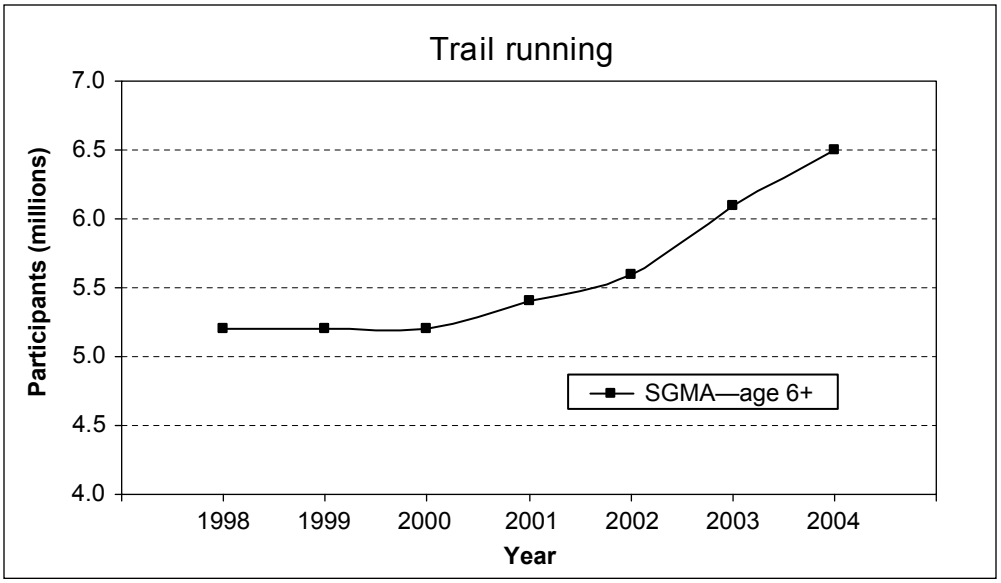

Figure 22—National trends in participation in trail running. SGMA = Sporting Goods Manufacturers Association.

increase over 20 years (Bowker et al. 1999). This increase is beyond that which would be expected by population growth rates alone.

Bowker et al. (1999) generated similar growth projections for four road and trail activities (fig. 23), with activity days in 2050 estimated to be approximately 1.5 times the 1995 levels. Hiking was expected to become a growth activity among older Americans (a group that is growing as baby boomers reach retirement), and most projections have been for substantial increases in total participation (Kelly and Warnick 1999).

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Winter sports—

According to the NSRE, by 2003, just over 67 million Americans reported engaging in snow or ice activities, up from 55.3 million in 1999. Downhill skiing attracted nearly 17 million participants (fig. 24). According to the SGMA (2005), in 2004, 12.0 million Americans went downhill skiing, and the NSGA estimated 5.9 million participants in "alpine skiing." All three sources, along with RoperASW (fig. 25), suggest a steady, but slight decline in downhill skiing.

All sources provide estimates of cross-country skiing (fig. 26). Whereas the NSRE estimates just over 6 million adult participants, OIF studies generate higher estimates, nearly 10 million in 2004. On the other hand, the SGMA and NSGA report much smaller numbers of participants, despite including children. The NSRE trend data reveal an overall decline in participation; the OIF data indicate a slight increase overall (note, however, that the numbers for 2001 and 2002 are inflated owing to changes in question wording); and the other three industry sources suggest that cross-country skiing is largely stable.

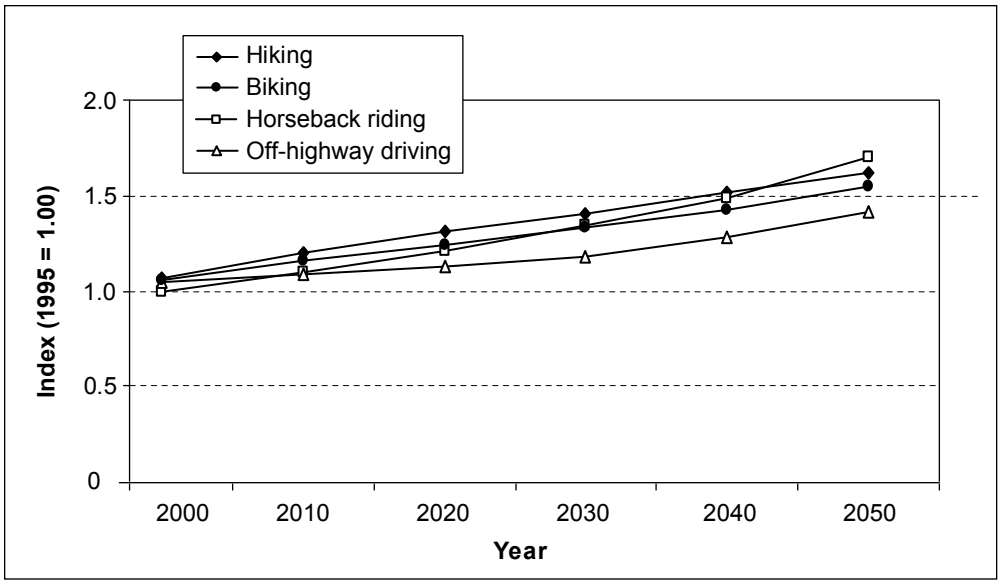

Figure 23—Projected change in number of activity days, trail- or road-based activities (Bowker et al. 1999).

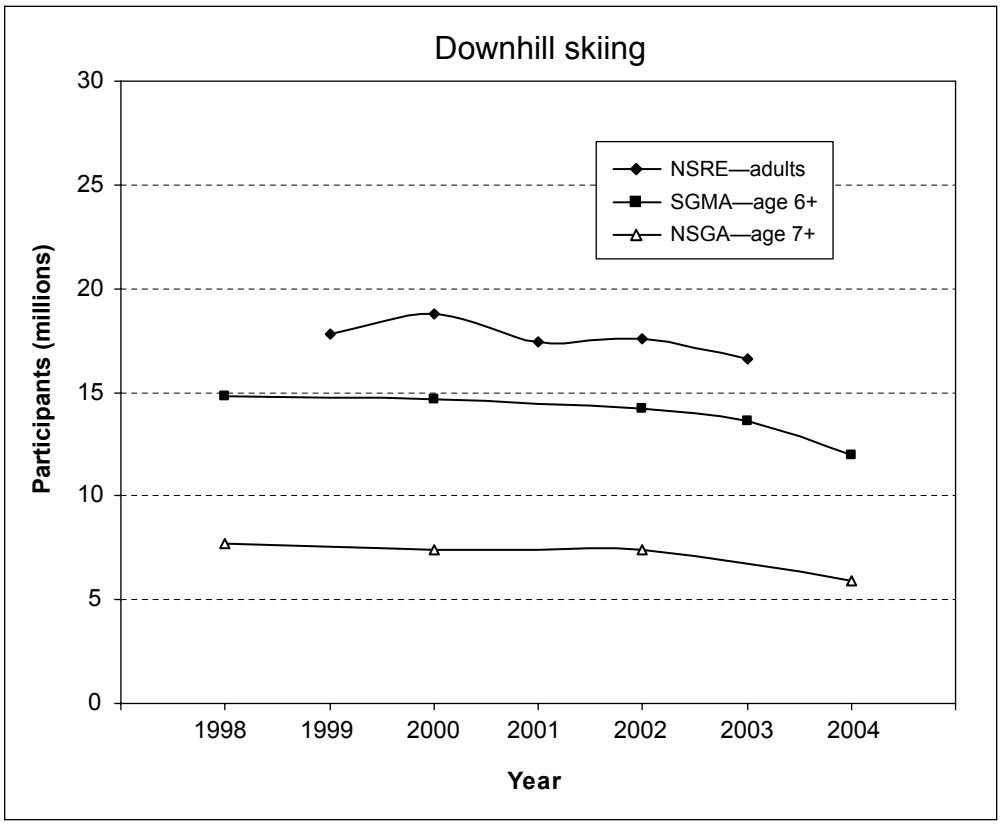

Figure 24—National trends in participation in downhill skiing. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association.

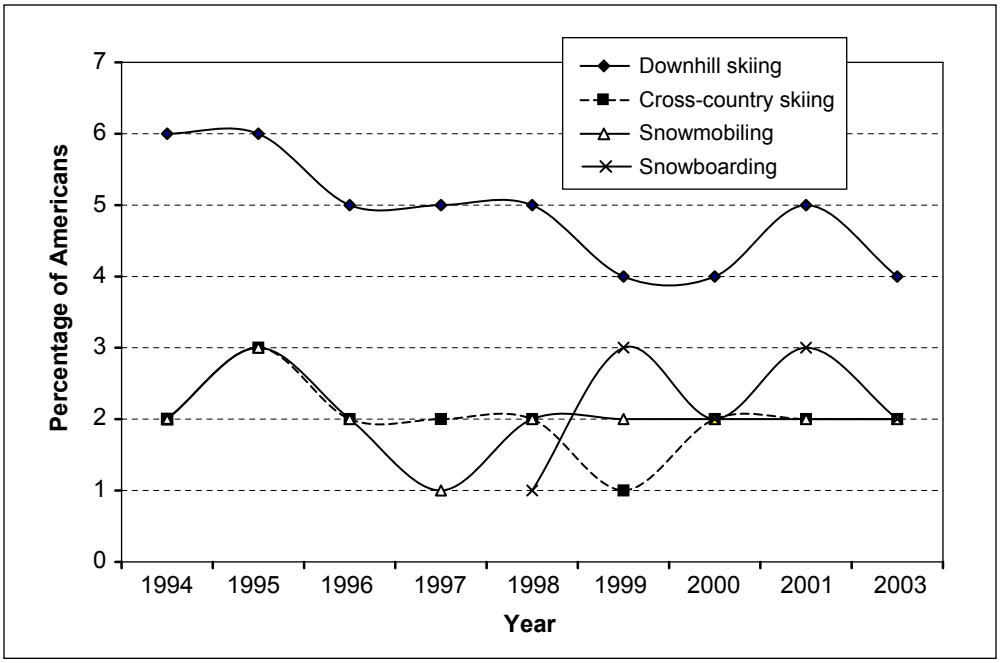

Figure 25—Percentage of Americans participating in winter activities (RoperASW 2004).

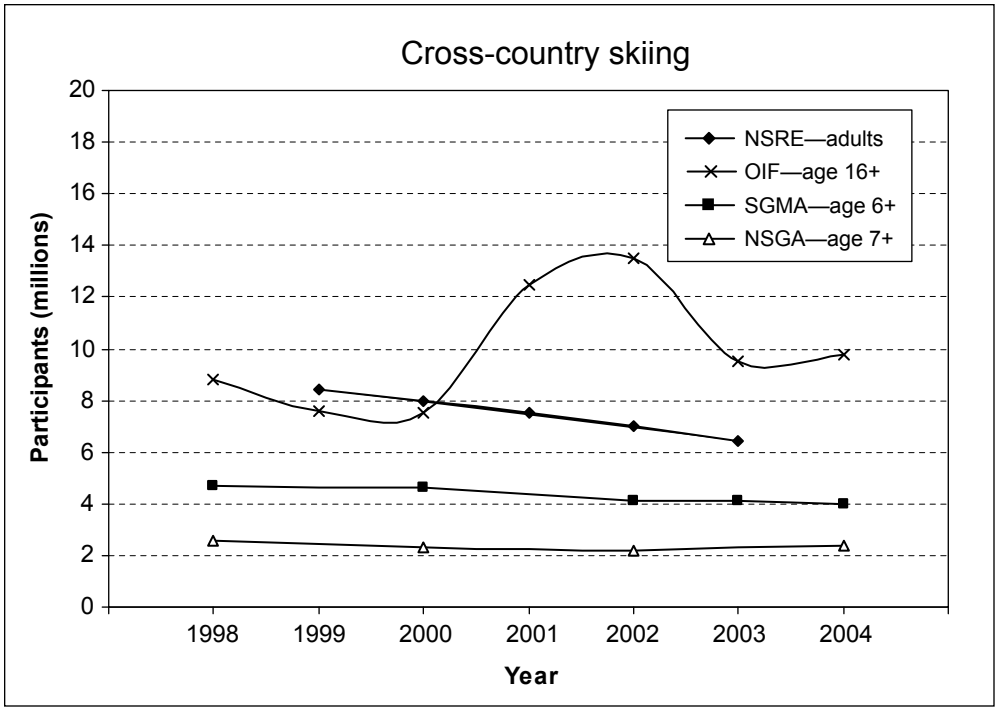

Figure 26—National trends in participation in cross-country skiing. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association, OIF = Outdoor Industry Foundation.

Snowmobiling participation estimates from the NSRE are approximately two to three times the numbers estimated by the SGMA (fig. 27). Whereas the NSRE shows participation in this activity to be stable or perhaps increasing, the SGMA suggests it may be declining.

According to both the NSRE and the SGMA data, snowboarding has outpaced snowmobiling in terms of total participation (fig. 28). However, with the exception of the most recent NSRE figures, participation seems to have reached a plateau.

The 1994-95 NSRE (Bowker et al. 1999) projected substantial growth in downhill skiing (fig. 29). This projection of a growth rate higher than the natural rate of population growth is counter to predictions from other sources. The NSRE projections for snowmobiling also differ from other studies. The NSRE predicted a substantial 42 percent increase over 10 years and 54 percent increase over 20 years in this activity. Other studies seem to indicate that snowmobiling participation rates have stabilized.

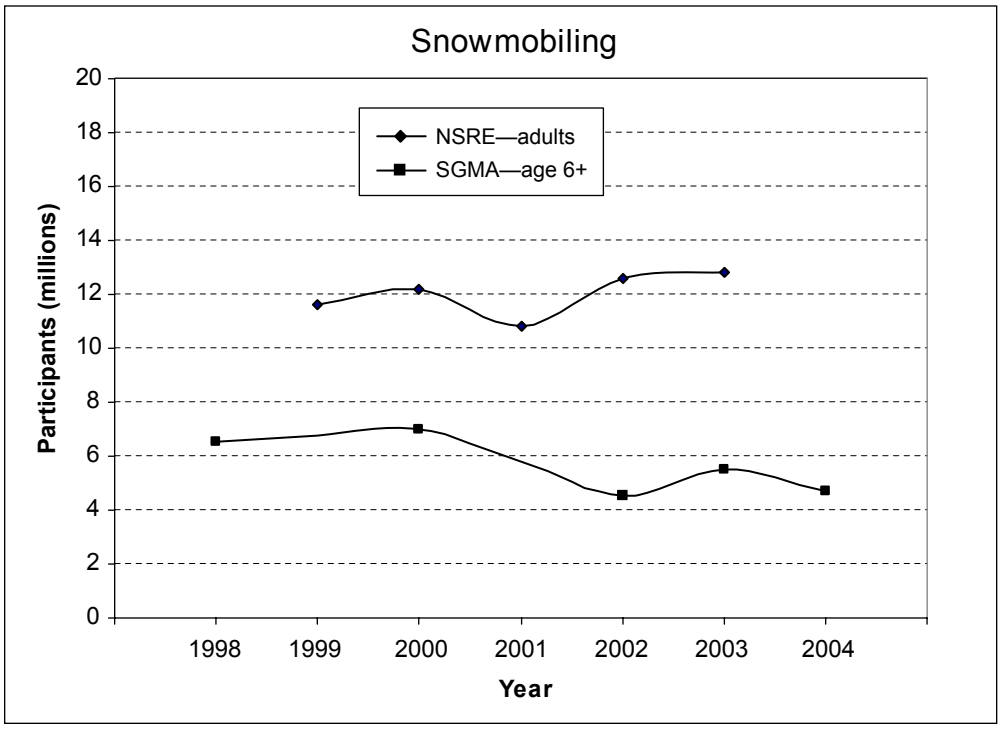

Figure 27—National trends in participation in snowmobiling. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association.

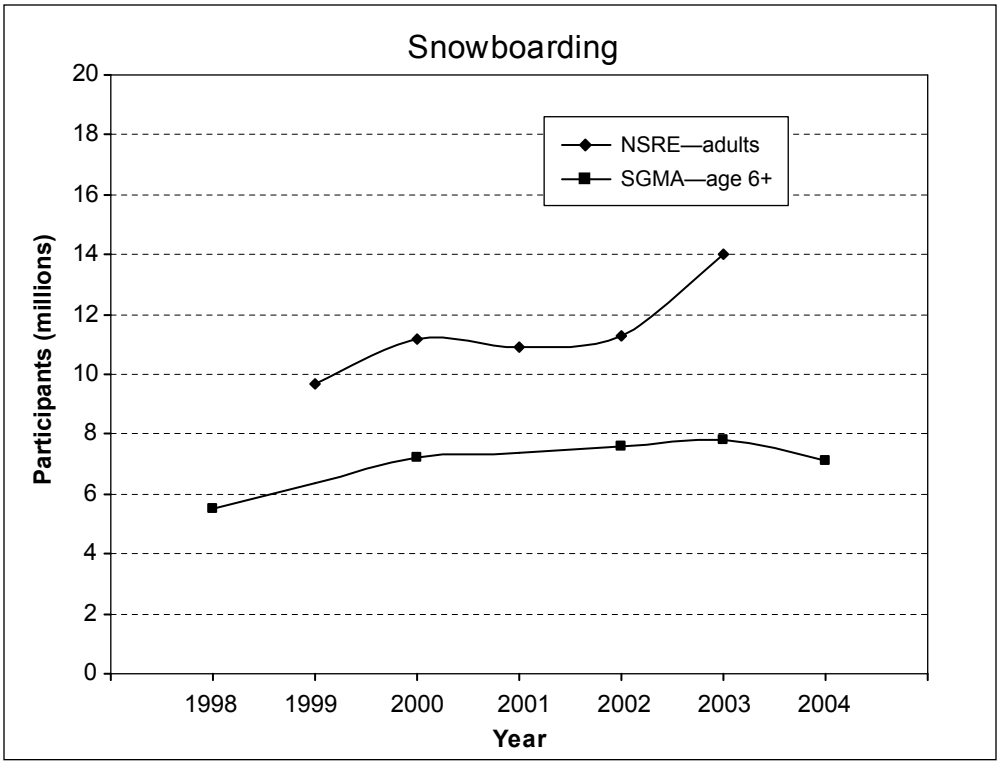

Figure 28—National trends in participation in snowboarding. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association.

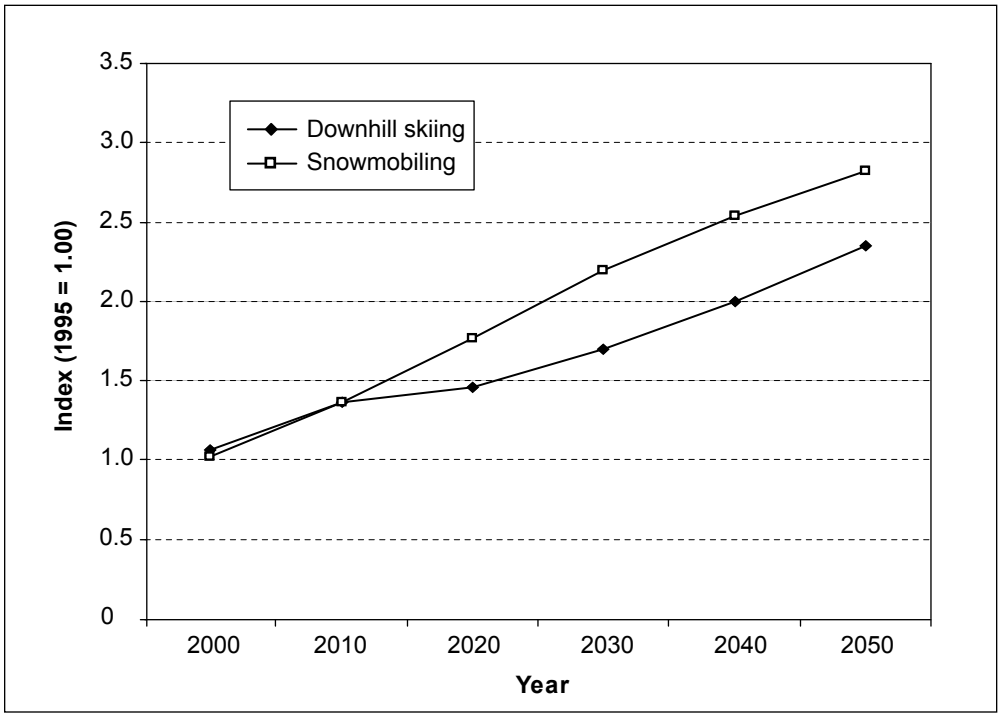

Figure 29—Projected change in number of activity days, winter sports activities (Bowker et al. 1999).

Camping—

According to the NSRE, nearly 61 million Americans went camping in 2003-2004, whereas the SGMA (2005) estimated approximately 49 million total campers in 2004. Estimates from all sources are generally more similar for camping than for many other activities: the OIF estimates 66 million participants and the NSGA estimates 55 million (fig. 30). There are many different styles of camping, and their participation rates differ considerably. For "developed camping" (NSRE) and "car camping" (OIF) there appear to be some notable annual fluctuations (fig. 31). RoperASW data for "campground camping" (fig. 32) also show annual variability. The SGMA and RoperASW have tracked RV camping specifically and have slightly different results. Whereas the RoperASW data show long-term stability (fig. 32), the SGMA indicate a slight decline (fig. 33).

The NSRE includes a question specifically about "primitive camping," in which about half of campers participated (fig. 34). The OIF studies ask about "camping away from your car," which might seem similar to primitive camping. As evident from the much lower numbers (17.5 million in the OIF versus 35.7 million in

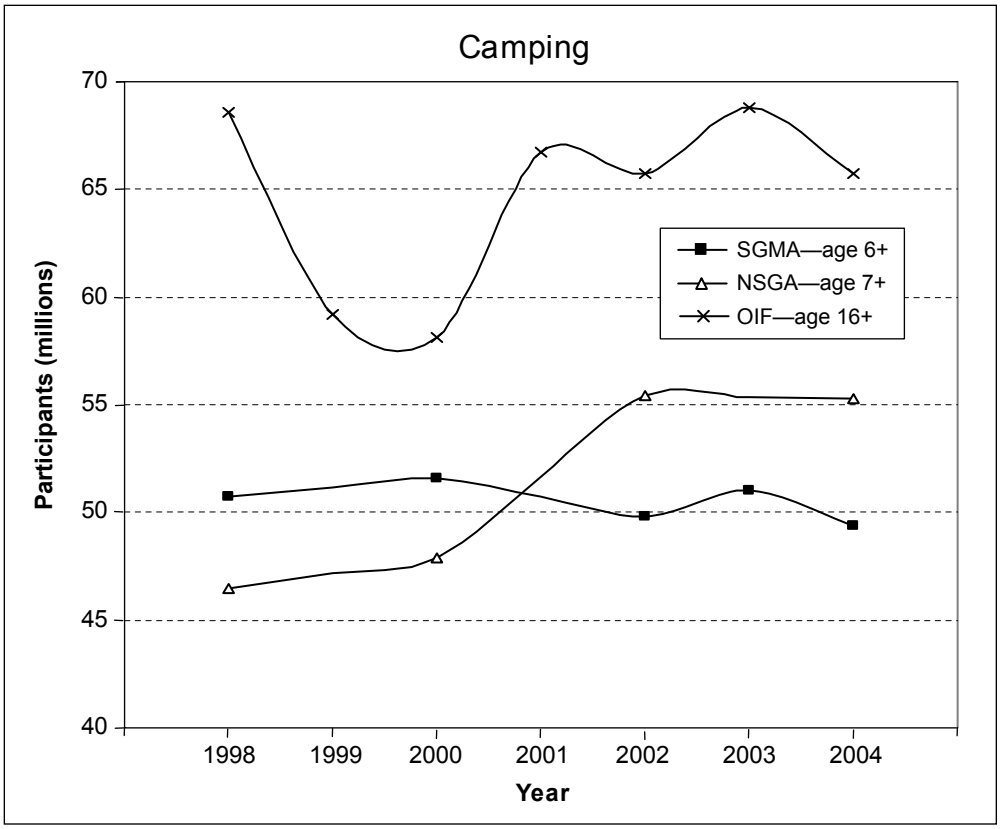

Figure 30—National trends in participation in camping. SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association, OIF = Outdoor Industry Foundation.

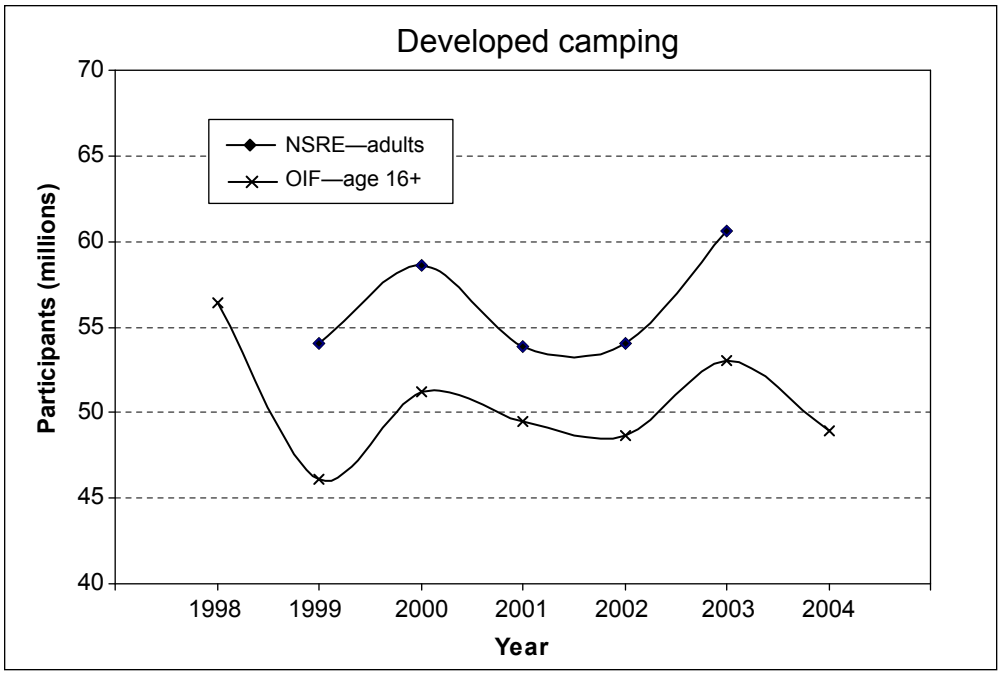

Figure 31—National trends in participation in developed camping. NSRE = National Survey on Recreation and the Environment, OIF = Outdoor Industry Foundation.

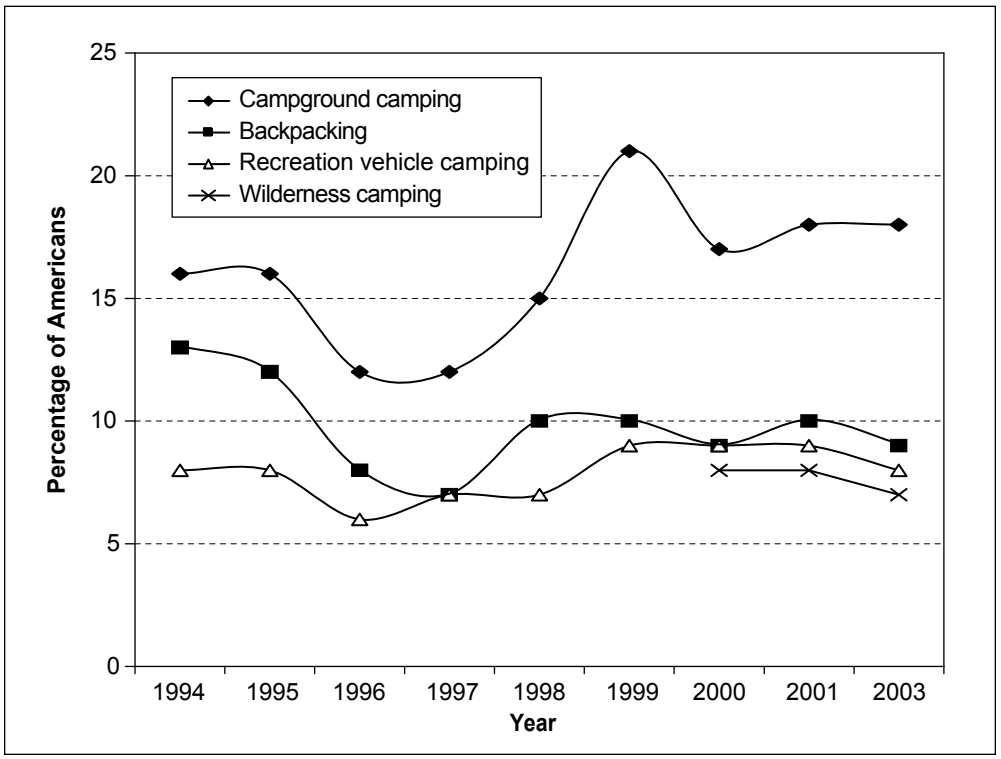

Figure 32—Percentage of Americans participating in camping activities (RoperASW 2004).

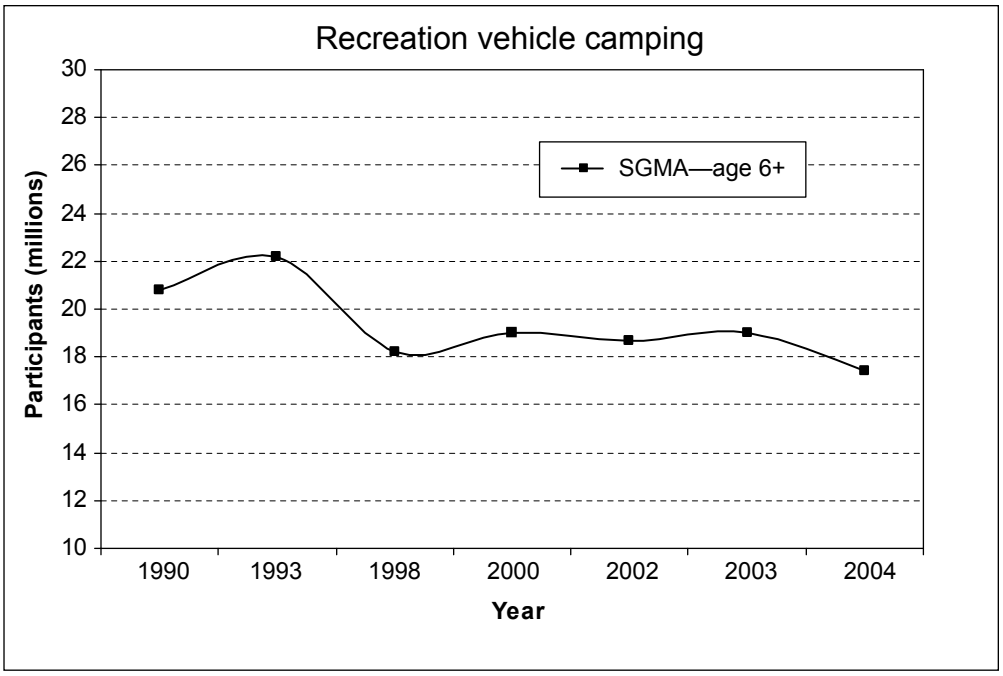

Figure 33—National trends in participation in recreational vehicle camping. SGMA = Sporting Goods Manufacturers Association.

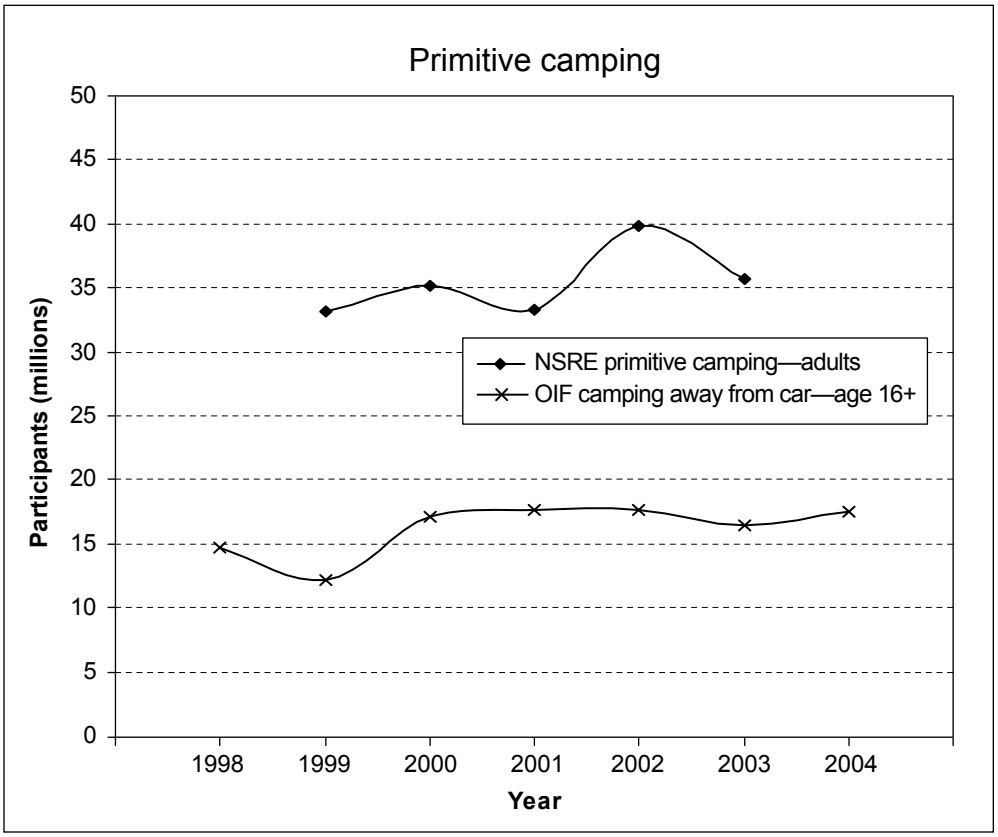

Figure 34—National trends in participation in primitive camping. NSRE = National Survey on Recreation and the Environment, OIF = Outdoor Industry Foundation.

NSRE), however, respondents apparently interpret the questions differently. Nevertheless, both studies suggest relative stability in this type of camping, although the NSRE seems to show more annual variability.

Several studies ask about backpacking (OIF, NSRE), backpacking/wilderness camping (NSGA), or overnight hiking (SGMA). These generate rather different estimates of participation (fig. 35). All except the OIF seem to indicate a recent slight upswing in participation. According to RoperASW (fig. 32), backpacking experienced a decline in the mid-1990s, but has stabilized between 9 and 10 percent (somewhat lower than in the early 1990s).

Expectations for future trends in camping are inconsistent. Whereas Kelly and Warnick (1999) expected little growth in camping, Cordell et al. (1999) expected camping to increase. The 1994-95 NSRE predicted a growth in primitive camping of 1.3 percent per year, leading to a 13 percent increase in the number of participants by 2005 and a 23 percent increase by 2015. It predicted slightly greater growth in developed camping: 19 percent over 10 years and 32 percent over 20 years. As seen in figure 36, Bowker et al. (1999) predicted little change in backpacking, but continued modest increases in both primitive and developed camping.

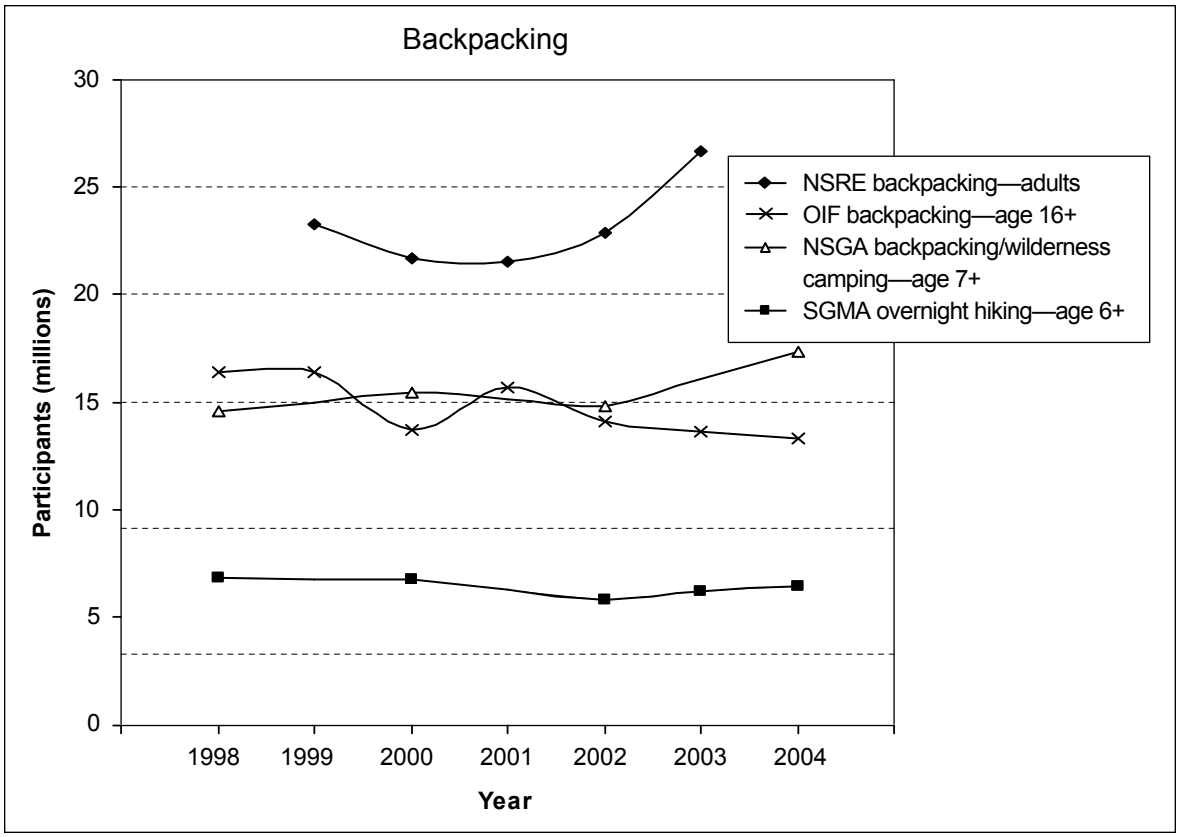

Figure 35—National trends in participation in backpacking. NSRE = National Survey on Recreation and the Environment, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association, OIF = Outdoor Industry Foundation.

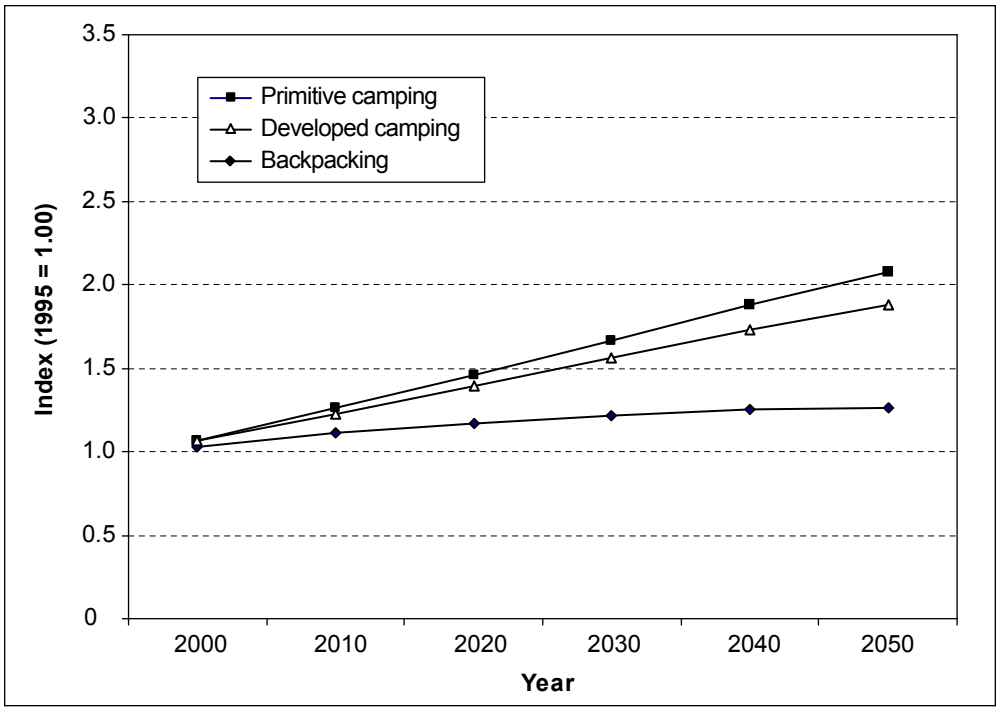

Figure 36—Projected change in number of activity days, hunting, fishing, and wildlife-related activities (Bowker et al. 1999).

The most popular activities across the United States are the more passive activities: sightseeing, picnicking, driving for pleasure, and visiting historic sites. Based on the NSRE, the number of Americans who said they viewed or photographed scenery increased from 115 million in 1999 to 152 million in 2004.

Other activities—

Various other activities that are tracked do not fit neatly into any of the above categories. These data show that the most popular activities across the United States are the more passive activities: sightseeing, picnicking, driving for pleasure, and visiting historic sites (fig. 37). Based on the NSRE, the number of Americans who said they viewed or photographed scenery increased from 115 million in 1999 to 152 million in 2004. According to RoperASW, the participation rate for pleasure driving has fluctuated between 33 percent and 43 percent over the last decade (fig. 38), while participation in rock climbing and visiting cultural sites has been stable. In the NSRE data, driving for pleasure showed similar wide reversals from year to year as seen in the longer term RoperASW studies. For three of the four time periods covered by the NSRE, viewing scenery increased by more than 10 percent per year. This amounts to a major overall increase in this activity in recent years. The NSRE indicates that picnicking has been generally steady. Contradicting this, the RoperASW data indicate a steady increase in picnicking since 1996. The differences between the two studies are unexplained.

Industry-sponsored studies do not track most of these other activities. However, rock climbing has received attention in three studies. The most thorough data come

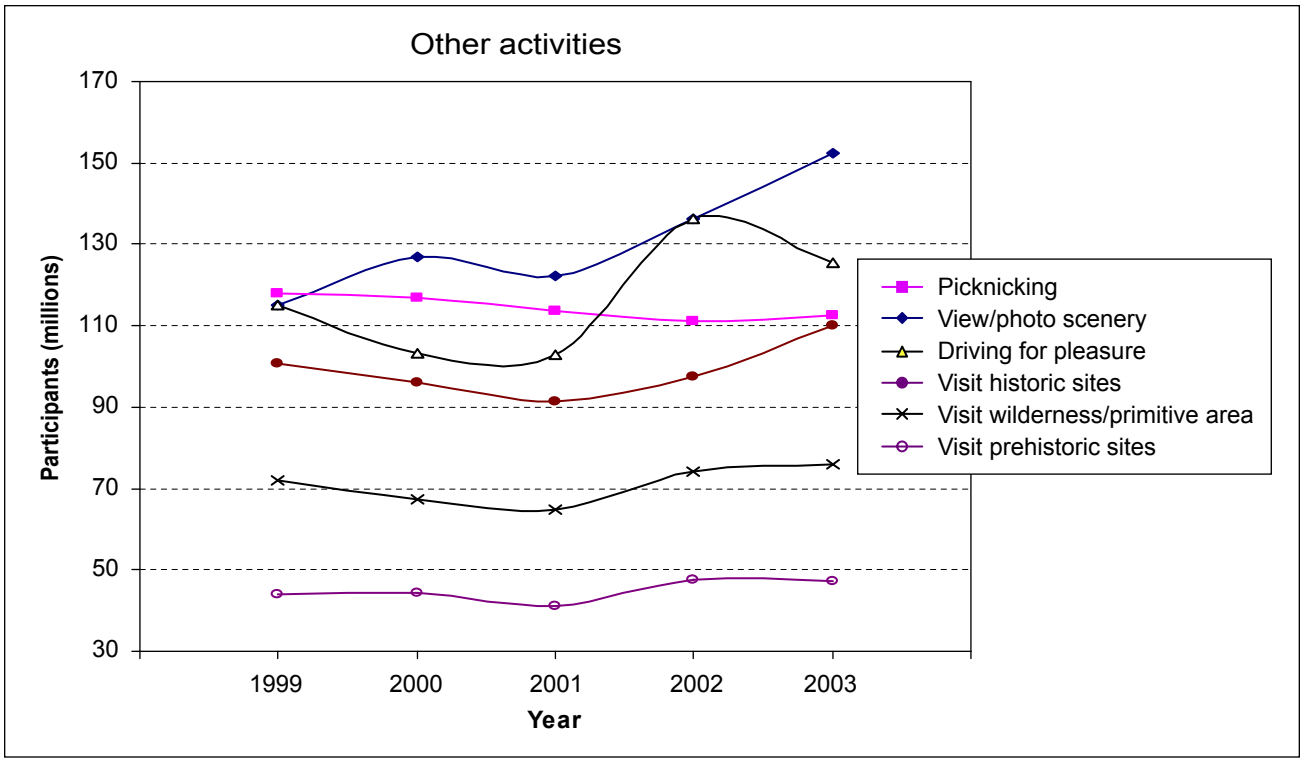

Figure 37—National trends in participation in other outdoor recreation activities (according to the National Survey on Recreation and the Environment).

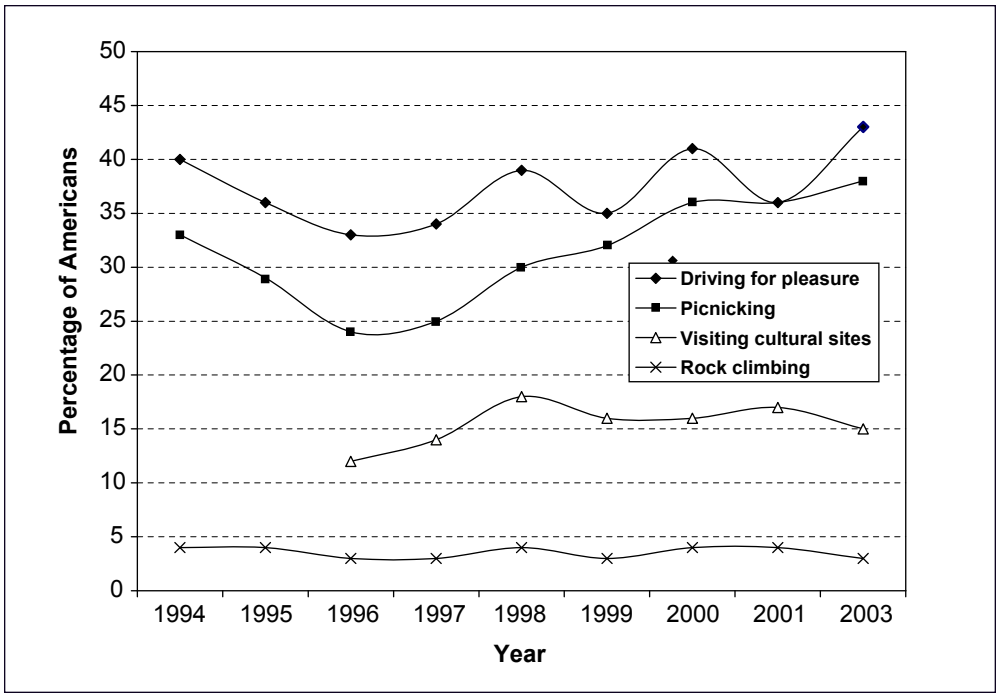

Figure 38—Percentage of Americans participating in other outdoor recreation activities (RoperASW 2004).

from the OIF (which asks about climbing with a rope on natural outdoor rock) and the SGMA (which asks about mountain/rock climbing). These show that participation is either stable or declining (fig. 39). The RoperASW data (fig. 38) indicate relatively stable participation rates (between three and four percent of the adult population) over the past 10 years.

The 1994-95 NSRE (Bowker et al. 1999) predicted that picnicking would increase at 2 percent per year through 2005 and then about 0.5 percent per year thereafter (fig. 40). "General nature activities" were expected to see an increase of 26 percent in the number of participants over 10 years and 37 percent over 20 years. Sightseeing was expected to continue its growth, increasing 23 percent over 10 years and 42 percent over 20 years.

According to the most recent NSRE data, the most popular outdoor recreation activity among Americans 16 years of age and older is viewing/ photographing natural scenery, followed by visiting nature centers and driving for pleasure.

Conclusions—activity participation—

According to the most recent NSRE data (USDA FS 2004a), the most popular outdoor recreation activity among Americans 16 years of age and older is viewing/ photographing natural scenery, followed by visiting nature centers and driving for pleasure (table 2). In general, more passive pursuits and educational activities are much more popular than physically challenging sports. However, referencing multiple sources of information—reports from the OIF, RoperASW, the SGMA, and NSGA, in addition to NSRE—paint a somewhat confusing picture of recent participation rates, trends in recreation, and what may be expected in the future (table 3).

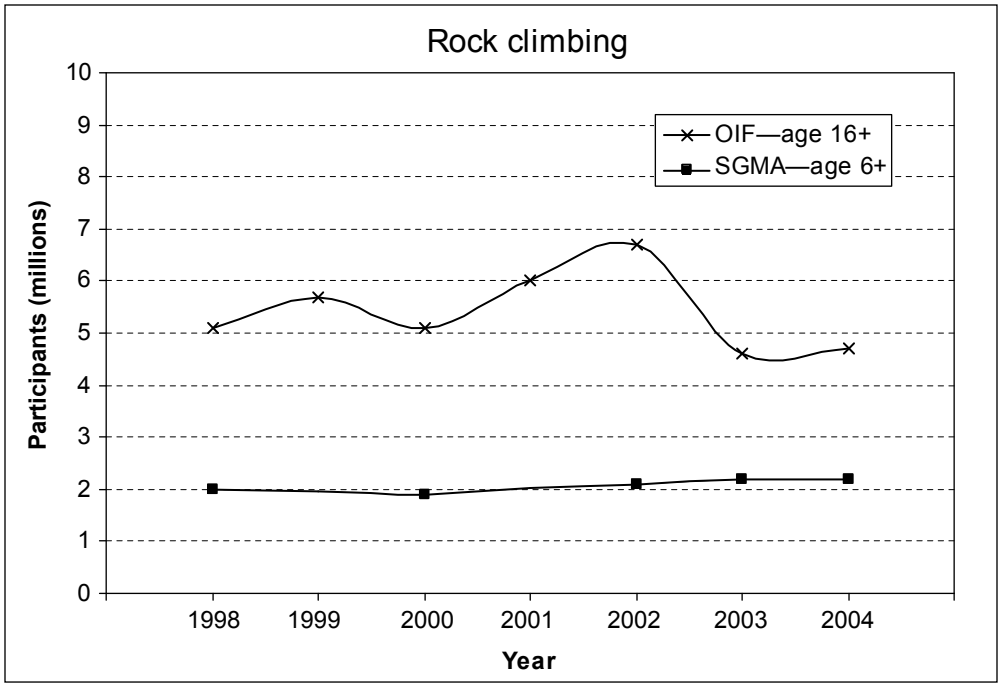

Figure 39—National trends in participation in rock climbing. SGMA = Sporting Goods Manufacturers Association, OIF = Outdoor Industry Foundation.

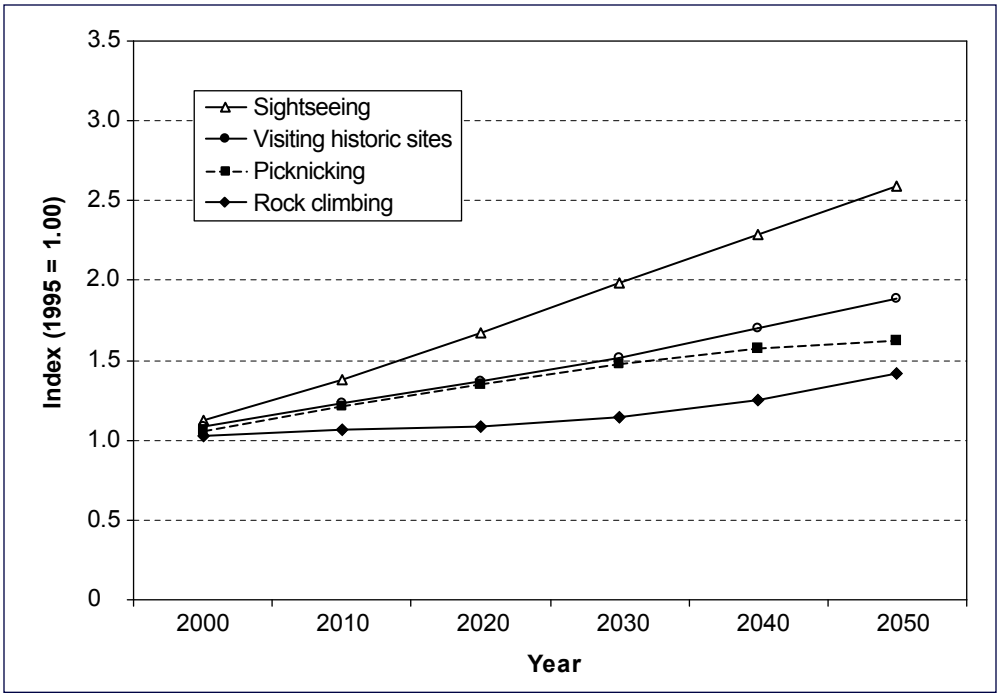

Figure 40—Projected change in other outdoor recreation activities (Bowker et al. 1999).

Table 2—Participation rates for outdoor activities in the United States in 2004

Activity	Percent	Activity	Percent
View/photograph scenery	70.6	Drive off-road	22.5
Visit nature centers, etc.	63.5	Visit archaeology sites	21.6
Driving for pleasure	61.2	Snow/ice activities	20.2
View/photograph other wildlife	58.2	Mountain biking	19.8
View/photograph vegetation	57.0	Primitive camping	15.5
Visit beach	56.9	Rafting	13.4
Swim in natural waters	54.2	Jet skiing	13.1
Visit historic sites	53.1	Hunting	13.1
Picnic	52.4	Coldwater fishing	13.0
Boating	44.2	Canoeing	12.6
View/photograph birds	39.8	Backpacking	8.9
Day hike	38.0	Horseback riding (general)	8.9
Bicycle	37.6	Horseback riding (trails)	7.1
Fishing	37.5	Kayaking	7.0
Visit wilderness/primitive	33.6	Downhill skiing	6.8
View/photograph fish	32.1	Snowmobiling	6.3
Developed camping	31.1	Snowboarding	5.9
Freshwater fishing	30.9	Cross-country skiing	2.7
Motor boating	30.3		

Source: USDA FS 2004a.

Table 3—Recent and projected changes in the number of participants in outdoor recreation

	Projection:	Recent trends				
Activity	**1994-95 NSRE**	**NSRE**	**OIF**	**RoperASW**	**SGMA**	**NSGA**
Backpacking	Stable	Recent increase	Slight decline	Decrease	Stable	Stable, recent increase
Bicycling		Slight decline	Fluctuating, overall stable	Stable		Stable
Canoeing	Increase		Stable	Increase	Stable	
Cross-country skiing		Decrease	Fluctuating, slight increase	Stable	Slight decrease	Stable
Day hiking	Slight increase	Fluctuating, stable overall		Fluctuating, overall stable		
Developed camping	Increase	Fluctuating	Fluctuating, overall stable	Fluctuating, overall stable	Stable	Increase
Downhill skiing	Large increase	Stable		Decrease	Slight decrease	Stable, recent decline
Driving for pleasure		Fluctuating, overall increase		Fluctuating, overall stable		
Fishing	Stable	Fluctuating, overall increase		Increase	Overall decline	Slight decline
Freshwater fishing		Stable		Increase	Decrease	
Hiking			Stable		Stable	Stable
Horseback riding	Slight increase	Decrease		Stable	Slight decline	
Hunting	Decrease	Fluctuating, overall stable		Stable	Decrease	Fluctuating, stable overall
Jet skiing		Increase		Increase	Fluctuating	
Kayaking		Steady increase	Fluctuating, overall stable	Increase	Steady increase	

Table 3—Recent and projected changes in the number of participants in outdoor recreation (continued)

Activity	Projection: 1994-95 NSRE	Recent trends				
		NSRE	OIF	RoperASW	SGMA	NSGA
Motor boating	Large increase	Stable, recent increase		Fluctuating, overall stable		Stable
Mountain biking	Slight increase	Slight decline	Fluctuating, overall stable	Stable	Stable	Stable
Off-road driving	Slight increase	Increase		Increase		
Picnicking	Slight increase	Decrease		Fluctuating, overall increase		
Primitive camping	Increase	Stable	Stable		Stable	
Rafting	Increase		Peak 2001, decline since		Stable	
Rock climbing	Stable	Stable	Peak 2002, overall stable	Stable	Stable	
RV camping				Stable	Slight decline	
Sightseeing	Large increase	Large increase				
Snowboarding		Increase		Stable	Stable	
Snowmobiling	Large increase	Fluctuating, slight increase		Stable	Fluctuating, overall decline	
Swimming	Increase	Increase		Increase		
Water skiing		Slight decline		Stable	Steady decrease	Fluctuating, recent decline
Wildlife viewing	Increase	Large increase		Fluctuating, overall stable		

NSRE = National Survey on Recreation and the Environment, OIF = Outdoor Industry Foundation, SGMA = Sporting Goods Manufacturers Association, NSGA = National Sporting Goods Association.

Most sources suggest that personal watercraft use, kayaking, and wildlife viewing are still increasing in participation.

Sources agree that participation in swimming, off-road driving, and sightseeing has increased, whereas downhill skiing has decreased. Only primitive camping and rock climbing show stable participation in all studies. Most data sources, though not all, agree about the direction of trend for most activities, although some large annual fluctuations complicate the picture. Most sources suggest that personal watercraft use, kayaking, and wildlife viewing are still increasing in participation. Most studies show that rafting, waterskiing, and horseback riding have begun to decline, whereas many activities (motor boating, canoeing, general bicycling, mountain biking, hiking, hunting, and RV camping) have stabilized recently. Data for fishing, backpacking, cross-country skiing, snowmobiling, snowboarding, developed camping, driving for pleasure, and picnicking are too mixed or contradictory to draw conclusions about trends.

National Trends in Recreation–Who Participates?

Outdoor recreation activities have wide appeal across America. According to the OIF (2005), the percentage of Americans 16 years of age and older who enjoy "human powered" activities such as hiking, whitewater sports, and mountain biking has increased from 59.9 percent since its first study in 1998, to 63.5 percent in 2004, with a peak of 66.8 percent in 2001. When other activities, such as driving for pleasure, are included, participation is nearly universal. Cordell et al. (2004) showed that, according to the NSRE, the number of Americans 12 years of age or older who engage in outdoor recreation increased from 131 million in 1960 to 229 million in 2000-2001.

Researchers believe that participation rates are picking up among older Americans, as health improves and as adults who have become accustomed to outdoor recreation begin to age.

The relationship of age, income, and education to participation—Despite the general increase in participation, differences exist among segments of the population. Two of the most significant relate to age and income (Kelly and Warnick 1999). Participation declines with age, especially for the more active pursuits (tables 4 and 5). However, researchers believe that participation rates are picking up among older Americans, as health improves and as adults who have become accustomed to outdoor recreation begin to age. The NSRE (USDA FS 2005c) notes that the number of people 65 years of age and older–who now make up 12.4 percent of the U.S. population–is expected to increase by 147 percent between 2000 and 2050. Recreation providers will need to focus on providing adequate opportunities for certain activities desired by older Americans, such as picnicking, driving for pleasure, and sightseeing.

Some activities, for example waterskiing, mountain biking, and personal watercraft use, remain most popular with younger adults. However, the Roper reports

Table 4—Percentage of Americans participating in any outdoor recreation activity at least once per month, by age and income

Age		Income	
Years	*Percent*	*Thousand dollars*	*Percent*
18-29	86	<15	65
30-44	86	15-30	73
45-59	73	30-50	83
60+	62	>50	89

Source: Roper Starch 2000.

Participation rates are lowest among the low-income population.

from 2000 (Roper Starch 2000) and 2003 (RoperASW 2004) indicate that participation in these activities is declining among younger (18 to 29 years old) Americans.

Participation rates are lowest among the low-income population (table 4). Data from the 1994/95 NSRE, although now more than 10 years old, support these conclusions for most activities (table 6). The differences are especially pronounced for visiting historic sites, biking, snow/ice activities, motor boating, swimming, and picnicking. Participation rates are more uniform for camping and hiking.

A similar pattern exists between education and participation. Such patterns are expected, as income and education tend to be highly correlated. More highly educated people tend to participate in activities such as visiting historic sites, hiking, and picnicking at a higher rate than those with less education. For other

Table 5—National participation rates for selected activities, by age, 1999-2001

	Age			
Activity	**12-24**	**25-39**	**40-59**	**60+**
		Percent		
Backpacking	16.4	13.8	9.7	2.5
Bicycling	56.9	46.9	37.3	19.1
Day hiking	33.8	40.3	35.5	19.2
Developed camping	32.7	31.1	27.1	14.3
Driving for pleasure	47.8	53.1	55.7	43.7
Horseback riding	16.3	11.6	9.1	2.7
Hunting	15.3	12.3	11.3	6.8
Off-road driving	28.9	20.9	15.1	6.3
Picnicking	46.1	60.2	59.6	46.0
Primitive camping	28.1	11.7	7.4	2.9
Sightseeing	45.4	53.9	56.7	46.7
Viewing/photographing birds	24.1	30.1	38.4	35.6
Visiting nature centers/museums	57.1	66.9	60.1	39.8
Walking for pleasure	84.7	83.8	84.6	78.8

Source: Cordell et al. 2004: table 2.2.

Table 6—Participation rates for selected activities, by income, 1994-95

Activity	Income (thousand dollars)					
	<15	15-25	25-50	50-75	75-100	>100
	Percent					
Backpacking	6	7	9	11	10	11
Bicycling	24	29	42	48	50	53
Developed camping	17	29	27	29	25	22
Fishing	24	32	39	41	41	38
Hiking	28	20	29	34	34	37
Horseback riding	5	8	11	14	14	16
Hunting	6	13	15	14	14	11
Motor boating	15	23	33	39	43	43
Off-road driving	12	15	21	21	17	22
Picnicking	41	53	63	64	64	59
Primitive area camping	11	14	18	18	17	16
Snow/ice activities	12	16	26	33	36	40
Visiting historic sites	27	37	50	58	58	62
Visiting prehistoric sites	11	15	20	22	22	25
Wildlife viewing	20	30	40	40	40	40

Source: NSRE 1994-95.

activities, such as camping, hunting, and fishing, backpacking, off-road driving, and horseback riding, the differences are negligible (table 7). According to the 1994-95 NSRE, a major difference occurs for picnicking, and moderate differences occur for motor boating, viewing activities, snow/ice activities, and biking. Explanations for some of these relationships probably have to do with socialization or the symbolic

Table 7—Participation rates for selected activities, by education, 1994-95

Activity	Some high school	Completed high school	Some college	Completed college
	Percent			
Backpacking	7.3	5.5	7.8	9.6
Bicycling	23.3	24.0	30.2	34.3
Developed camping	19.5	29.7	22.8	20.3
Fishing	27.1	30.5	30.9	26.1
Hiking	18.3	17.5	25.8	31.1
Horseback riding	7.6	6.0	7.6	7.8
Hunting	10.3	10.7	9.9	6.8
Motor boating	16.8	21.8	25.8	25.9
Off-road driving	14.1	14.2	16.6	11.0
Picnicking	32.4	45.9	52.9	56.3
Primitive area camping	14.5	14.0	14.6	13.0
Snow/ice activities	15.3	13.5	18.9	23.5
Visiting historic sites	27.1	34.9	47.6	58.1
Visiting prehistoric sites	11.1	13.3	19.4	22.4
Wildlife viewing	20.2	28.3	34.1	36.3

Source: NSRE 1994-95.

status associated with different activities. According to the U.S. Census Bureau (2004), nearly all Americans now complete high school, and college education rates have steadily risen. If this trend continues, it may lead to shifts in participation for some activities.

Ethnicity and participation—
Differences in outdoor recreation participation have been reported for different ethnic groups (Cordell et al. 2004). Among Whites studied in 2003, the mean number of different outdoor recreation activities per individual was 5.2, compared to 2.3 for African-Americans and 3.5 for Hispanics (RoperASW 2004). Socialization, cultural norms, and unequal income distributions probably explain some of these observed differences (Johnson and Bowker 1999; Johnson et al. 1997, 1998; Taylor 2000). African-American participation is lower for almost all outdoor recreation activities than participation among Hispanics, Asian-Americans, and non-Hispanic Whites, but especially for camping, hiking, and boating (table 8). Hispanic participation is also notably lower than White participation (tables 8 and 9) for many activities. The most notable differences occur in viewing and learning activities, with White participation rates generally more than 20 percent higher than Hispanic rates. However, participation by Hispanics is higher than any other group for hiking. Asian-American participation in most activities is similar to Hispanic rates and is close

Table 8—Participation rates among ethnic groups for selected land-based activities

		2000-04				
Activity	**2000-01 African American[a]**	**White[b]**	**Hispanic, Mexican origin[c]**	**Hispanic, non-Mexican[c]**	**Asian American[b]**	**American Indian[d]**
			Percent			
Backpacking	3.4	12.7			11.3	16.0
Bicycling	35.9	42.5	33.7	35.1	38.3	38.2
Developed camping	13.7	30.8	19.1	19.2	23.1	33.9
Fishing	26.6	39.3				
Hiking	10.5	34.5	49.3	41.5	30.4	36.4
Horseback riding	5.3	11.7	5.2	5.7	5.5	11.5
Hunting	4.7	14.6	5.0	5.3	4.1	18.9
Motor boating	8.4	31.2				
Off-road driving	11.2	21.0	10.9	12.3	12.9	27.4
Picnicking	46.6	56.5	49.1	45.3	56.7	57.3
Primitive camping	5.4	20.1	9.0	9.8	12.1	31.3
Visit a wilderness or primitive area		37.6	15.9	21.6	26.6	42.7

[a] Cordell et al. 2004. Indicates percentage of population 12 years or older.
[b] Source: USDA FS 2005b. Indicates percentage of population 16 years or older.
[c] Source: USDA FS 2004c. Indicates percentage of population 16 years or older.
[d] Source: USDA FS 2005a. Indicates percentage of population 16 years or older.

Table 9—Participation rates among White and Hispanic populations for selected viewing and learning activities, 2000-2004

Activity	White non-Hispanic	Hispanic, Mexican origin	Hispanic, not Mexican
		Percent	
Sightseeing	57.7	27.9	35.0
View/photograph natural scenery	67.3	42.1	47.3
View/photograph wildlife (other than birds)	52.4	24.3	28.3
Visit historic sites	50.8	25.0	37.3
Visit nature centers, etc.	60.6	49.8	53.1
Visit prehistoric/archaeological sites	21.5	15.9	21.6
Visit wilderness or primitive area	37.6	21.2	22.3

Source: USDA FS 2004d. Indicates percentage of population 16 years or older.

to the rate for Whites for bicycling, hiking, and picnicking. American Indians and Alaska Natives have relatively high participation rates for many activities, including the highest rates for camping, hunting, backpacking, OHV riding, horseback riding, and visiting wilderness.

Other studies reinforce the finding that members of different groups recreate in different ways. For instance, Hutchison (1987), in an observational study of more than 18,000 groups in 13 Chicago parks, found that approximately half of White and African-American visitors engaged in "mobile" activities, compared to 25 percent of Hispanics. Hispanic people were more likely to engage in "stationary" (passive) activities. Additionally, Hispanic groups were larger (mean = 5.7 people) than White (mean = 2.5) or African-American (mean = 3.8) groups. Studies such as this indicate that different populations may use sites differently in addition to engaging in different activities. In parts of the Pacific Northwest, Hispanic and Asian populations in particular are growing rapidly, which may lead to different recreation needs.

Gender and participation—
Differences in participation between men and women (table 10) are not as pronounced as differences based on income or ethnicity. Slightly more women than men tend to walk for pleasure, whereas more men than women participate in biking, hiking, off-road driving, primitive camping, and hunting.

Regional Trends

Population trends—
Before discussing trends and projections for outdoor recreation in Oregon, Washington, and Alaska, we need to address the rapidly changing population base. The West has grown–and is expected to continue to grow–dramatically in overall popu-

Table 10—Participation in recreation activities, by gender

Activity	Male	Female
	Percent	
Backpacking	14.6	7.9
Bicycling	45.3	36.5
Day hiking	37.0	29.9
Developed camping	28.7	25.1
Driving for pleasure	51.1	51.0
Driving off-road	23.2	13.8
Horseback riding	10.6	9.8
Hunting	20.3	3.7
Picnicking	51.2	56.4
Primitive camping	22.0	11.7
Sightseeing	49.7	53.0
Viewing/photographing birds	29.3	34.1
Visiting nature centers/museums	57.7	56.6
Walking for pleasure	79.8	86.0

Source: Cordell et al. 2004: table 2.2.

lation, with much of this growth occurring near national forests. This obviously has bearing on the expected increase in recreation on public lands. National projections for recreation consider the overall population growth of the country, but because the West is growing more rapidly, the region may see accelerated trends. This is especially likely because many immigrants to the region value outdoor recreation highly (Duffy-Deno 1998, English et al. 2000, Johnson and Beale 2002, Rasker et al. 2004, Rudzitis and Johansen 1989).

Frentz et al. (2004) demonstrated that in western counties, population growth since 1970 has been highest in counties with at least 1 mi^2 of federal land (table 11). Between 1970 and 2000, nonmetropolitan western counties with Forest Service land grew an average of 85.2 percent, compared to 78.7 percent for those with Bureau of Land Management land and 87.3 percent for those with National Park Service land. The impact on recreation demand is thus substantial.

From 1990 to 2000, the U.S. population grew 13.1 percent. Alaska grew at close to the national rate, 14.0 percent. Oregon (20.4 percent) and Washington

In western counties, population growth since 1970 has been highest in counties with at least 1 mi^2 of federal land. Between 1970 and 2000, nonmetropolitan western counties with Forest Service land grew an average of 85.2 percent, compared to 78.7 percent for those with Bureau of Land Management land and 87.3 percent for those with National Park Service land. The impact on recreation demand is thus substantial.

Table 11—Population growth in western counties with and without federal land, 1970-2000

Timespan	No federal land	Federal land
	Percent growth	
1970-1980	11.5	31.4
1980-1990	1.3	10.8
1990-2000	18.5	20.5
1970-2000	48.3	89.6

Source: Frentz et al. 2004.

Table 12—Projected changes in state populations, 1995-2025

Timespan	Alaska	Oregon	Washington
		Percent change	
1995-2000	8.1	8.2	7.4
2000-2005	7.2	7.8	6.5
2005-2015	13.0	9.0	11.6
2015-2025	11.9	8.9	24.9
Total	46.5	38.5	59.4

Source: U.S. Census Bureau 2005.

(21.1 percent), however, far outpaced the national growth. Between 1995 and 2025, Oregon's population is expected to grow 38.5 percent while Washington's grows 59.4 percent and Alaska's grows 46.5 percent (table 12). This growth will likely result in increased recreation use.

Changes in other demographic characteristics in the region such as ethnicity and age are also likely to affect trends in recreation. Compared to other states in the country, the Pacific Northwest region has relatively smaller populations of African-Americans and Hispanic people (fig. 41). The White non-Hispanic portion of the population in 1998 was 83 percent in Oregon, 75 percent in Washington, and 69 percent in Alaska (U.S. Census Bureau 2005). However, compared to the rest of the country, Oregon, Washington, and Alaska have a higher proportion of American Indians and Alaska Natives.

Projections for ethnic diversification are different for the different states. In Alaska, the number of Asian/Pacific Islanders is expected to quadruple by 2025,

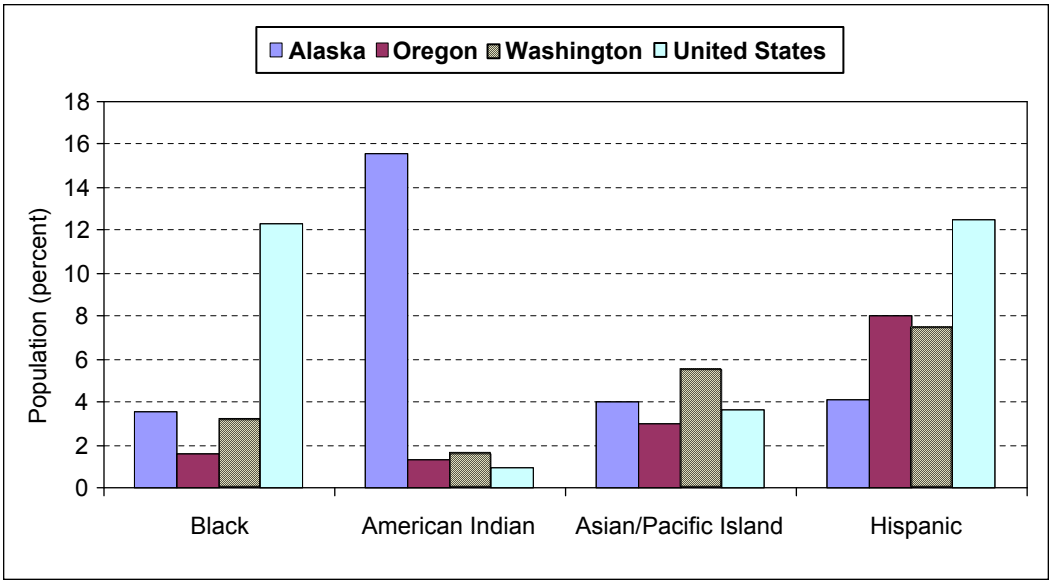

Figure 41—Percentage of regional population comprising selected ethnic groups, 2000 (U.S. Census Bureau 2005).

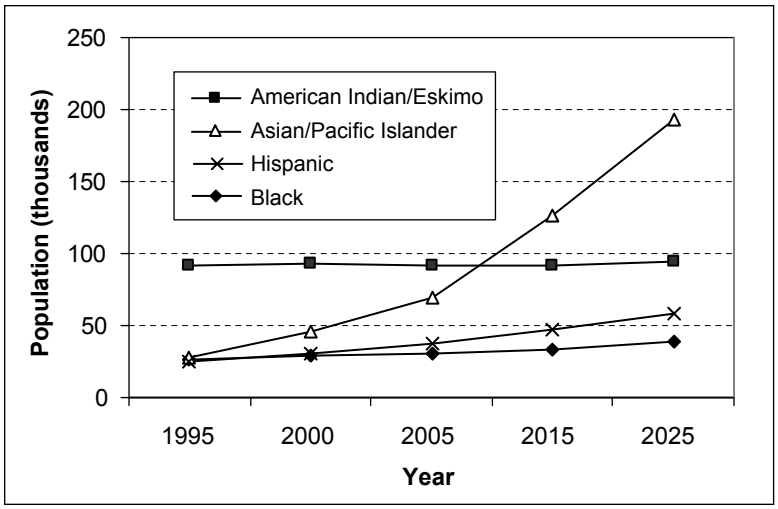

Figure 42—Projected population growth for Alaska's ethnic groups, 1995-2025 (U.S. Census Bureau 2005).

whereas the number of Alaska Natives is not expected to change (fig. 42). The Hispanic population will likely increase moderately, and the African-American population will increase only slightly.

In Oregon, the Hispanic population is projected to almost triple by 2025, and the number of Asian/Pacific Islanders will more than double (fig. 43). The American Indian and African-American populations will also increase, although they will remain a relatively small part of the overall population of the state.

The number of Hispanic and Asian/Pacific Islander people will more than double in Washington between 1995 and 2025 (fig. 44). African-American and American Indian populations will also increase, though more slowly.

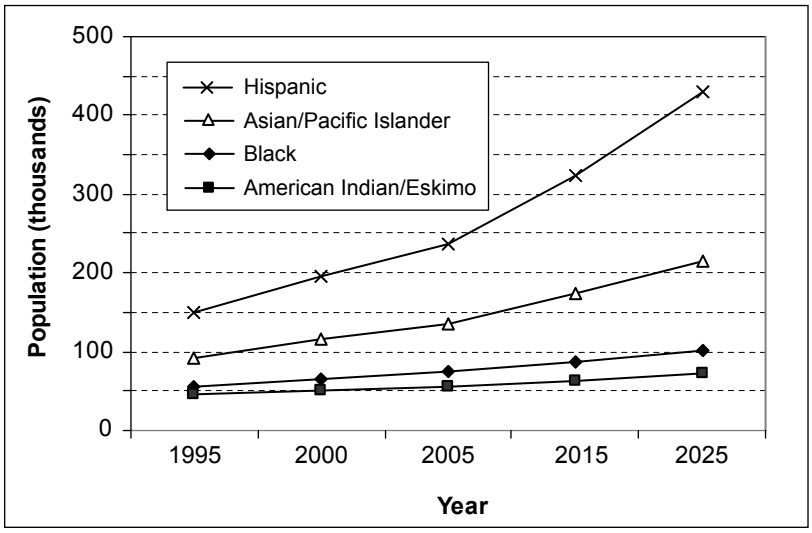

Figure 43—Projected population growth for Oregon's ethnic groups, 1995-2025 (U.S. Census Bureau 2005).

In Alaska, the number of residents older than 65 is projected to increase by more than 250 percent between 2000 and 2030, at which time this age group is expected to make up nearly 15 percent of the state's population. Oregon and Washington are projected to experience more than 100 percent growth in this age group, and by 2030, residents older than 65 are projected to make up just over 18 percent of the population in both states.

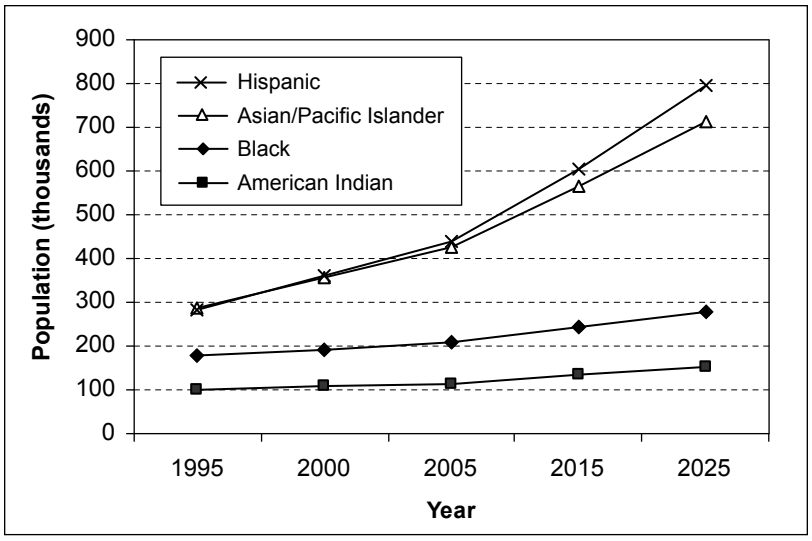

Figure 44—Projected population growth for Washington's ethnic groups, 1995-2025 (U.S. Census Bureau 2005).

A final important demographic trend to keep in mind concerns the region's aging population. Figures 45 to 47 display projected changes in the age structure of the three states. The percentage of the population over age 65 will increase, while younger age groups (<18 years) will remain relatively stable in size. In Alaska, the number of residents older than 65 is projected to increase by more than 250 percent between 2000 and 2030, at which time this age group is expected to make up nearly 15 percent of the state's population. Oregon and Washington are projected to experience more than 100 percent growth in this age group, and by 2030, residents older than 65 are projected to make up just over 18 percent of the population in both states (U.S. Census Bureau 2005).

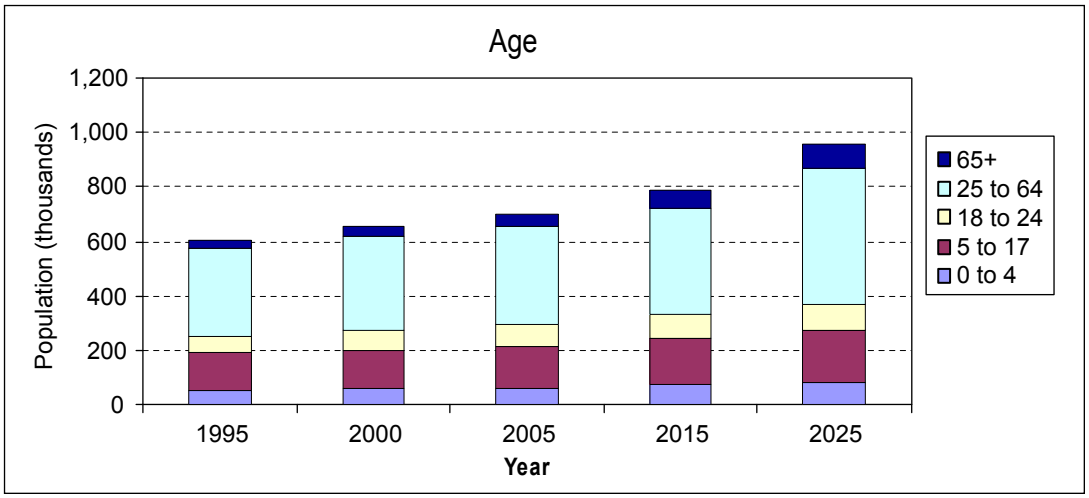

Figure 45—Projected change in Alaska's population, 1995-2025, by age (U.S. Census Bureau 2005).

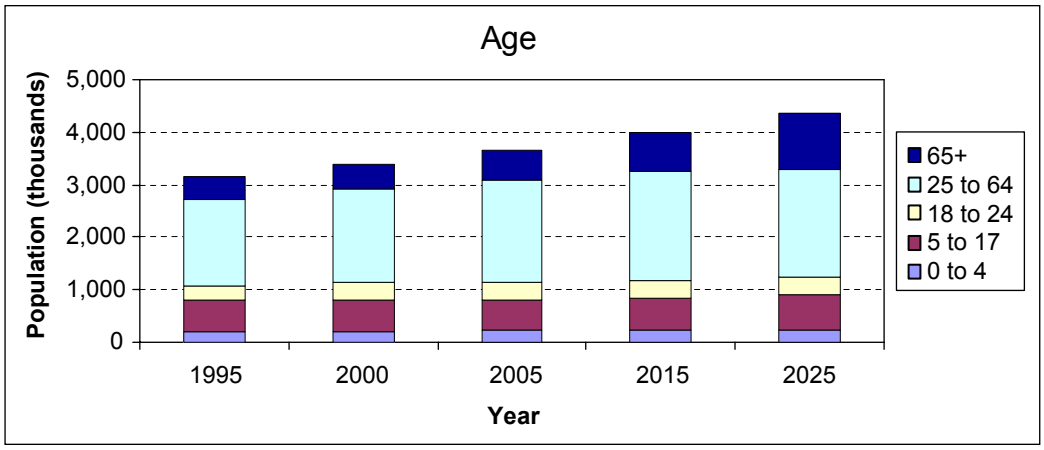

Figure 46—Projected change in Oregon's population, 1995-2025, by age (U.S. Census Bureau 2005).

Recreation in the Pacific Northwest—

Outdoor recreation is valued by many who live in the Pacific Northwest. Several national studies indicate that participation rates and utilization of public lands are higher in the West than in many parts of the country, and even higher in Alaska (Alaska Department of Natural Resources 2004). According to Burchfield et al. (2000: 60), who reported unpublished data from a regional marketing survey of the general population, "the majority of Oregon and Washington residents (57 percent) believe that they recreate on national forest lands even though they are not actually sure where those lands are."

The 1994-95 NSRE reported participation rates by activity for each national forest region (NSRE 1994-95 technical appendix, table V.40). Although the data are somewhat old, they showed that for most activities, per capita participation

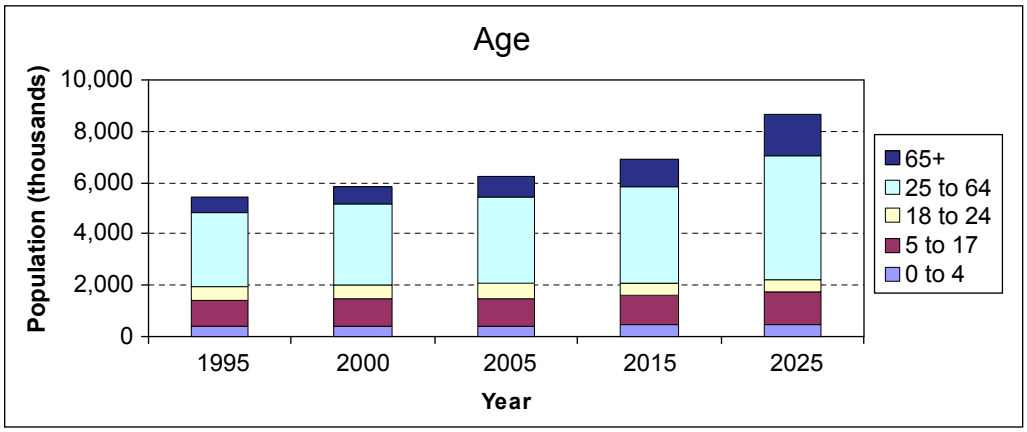

Figure 47—Projected change in Washington's population, 1995-2025, by age (U.S. Census Bureau 2005).

was higher in the Pacific Northwest (Region 6) and Alaska (Region 10) than in the United States (table 13). Alaska showed dramatically higher participation for expected activities, such as wildlife viewing, snow and ice activities, and fishing.

Cordell et al. (2004) presented more recent participation data by census region, which combined Oregon, Washington, and Alaska with nine other states to form the West region. Comparing the 1994-95 NSRE with the 2000-2001 estimates shows that participation has increased for several activities across the country, but hunting, backpacking, and day hiking have declined. No change occurred in motor boating, off-road driving, or picnicking. The more recent data show that the West participates at much the same rate as the rest of the country for most activities. Primitive camping and backpacking are the only activities notably more popular in the West.

Data now available from the NVUM indicate the relative popularity of each national forest in Oregon, Washington, and Alaska (table 14). The data were collected between 2000 and 2003, with a different set of forests studied each year. When examining these figures, it is important to note the confidence intervals, which indicate the precision of the use estimates. The number of visits should be read as an approximation bounded by the confidence limits. For instance, on the

Table 13—Participation rates in the United States and the West (Pacific Northwest and Alaska Regions) for selected activities

	1994-95[a]			2000-01[b]	
Activity	United States	Pacific Northwest	Alaska Region	United States	West
			Percent		
Backpacking	23.9	38.8	43.1	10.7	16.3
Bicycling	28.7	31.7	36.8	39.5	41.5
Developed camping	20.7	35.0	26.7	26.4	32.9
Fishing	28.9	28.0	53.5	–	–
Hiking	39.0	38.0	31.4	33.3	45.8
Horseback riding	13.9	15.1	21.1	9.7	10.9
Hunting	9.3	10.3	19.0	8.1	7.3
Motor boating	23.5	25.5	32.7	24.4	21.4
Off-road driving	7.6	15.1	21.1	17.5	20.5
Picnicking	49.1	56.3	56.1	54.5	58.0
Primitive area camping	10.7	20.8	25.3	16.0	23.1
Snow/ice activities	18.1	21.8	43.0	–	–
Visiting historic sites	44.1	44.8	45.8	46.2	45.0
Visiting prehistoric sites	17.4	19.4	22.8	20.9	24.6
Wildlife viewing	31.2	39.3	51.0	44.7	45.0

– = no data available.
[a] Source: NSRE 1994-95.
[b] Source: Cordell et al. 2004. "West" includes 12 Rocky Mountain, Southwest, and Pacific Northwest States.

Chugach National Forest, the annual number of visits is estimated, with 80 percent confidence, at 630,531 ± 32 percent, or between 428,761 and 832,301.

Recreation use differs tremendously across the forests. Mount Baker Snoqualmie National Forest (near Seattle) receives 5 million annual visits, whereas Mount Hood National Forest (near Portland) receives more than 4 million, making these forest the most heavily visited in the two states. Site visits exceed forest visits, because people often visit more than one type of area during a single trip, and nine national forests record more than 2 million site visits per year.

Oregon—In addition to the NVUM and other U.S. Forest Service estimates of use, statewide estimates of recreation participation are available from the SCORP reports, which provide an independent check on the nationally derived estimates. The most recent Oregon SCORP survey reinforces the perception that Oregonians

Table 14—National forest visitor use estimates for national forests in Oregon, Washington, and Alaska, 2000-2003

	National forest visits		Site visits		Wilderness visits	
National forest	**Visits**	**80% CI**	**Visits**	**80% CI**	**Visits**	**80% CI**
		Percent		*Percent*		*Percent*
Chugach	630,531	31.9	903,505	30.0	—	—
Columbia River Gorge	2,000,000	14.7	3,200,000	13.9	0	0
Colville	546,260	21.0	604,629	20.1	7,073	91.8
Deschutes	2,784,667	8.9	3,793,390	10.3	84,717	49.4
Fremont	529,594	60.0	574,563	55.3	2,219	55.1
Gifford Pinchot	1,787,103	15.0	2,793,605	12.8	15,522	24.4
Klamath	415,419	23.0	519,606	25.0	23,842	13.8
Malheur	422,666	26.4	545,099	23.0	10,268	42.0
Mount Baker-Snoqualmie	5,000,000	14.9	5,400,000	13.7	700,000	15.2
Mount Hood	4,076,119	18.6	4,981,333	15.7	137,184	38.4
Ochoco	600,000	18.6	700,000	18.1	7,000	33.0
Okanogan	400,000	23.1	500,000	20.3	32,000	29.7
Olympic	500,000	13.9	500,000	12.7	40,000	34.2
Rogue River	508,252	34.2	617,440	28.3	3,289	73.7
Siskiyou	648,591	20.2	764,757	20.5	4,549	46.4
Siuslaw	2,013,384	21.9	2,633,188	21.2	25,761	63.0
Tongass	1,830,678	18.7	2,134,864	18.3	200,014	40.9
Umatilla	652,340	18.6	703,508	18.5	62,573	80.8
Umpqua	734,805	21.6	1,167,525	21.3	20,587	39.0
Wallowa-Whitman	565,681	18.7	654,476	17.5	56,968	20.9
Wenatchee	2,532,617	14.0	2,726,705	12.9	300,584	14.1
Willamette	1,494,834	12.9	2,142,159	15.9	45,256	16.5
Winema	297,161	18.6	331,269	16.8	8,236	33.1
Total	18,222,399		25,553,262		808,629	

— = data not available.
CI = confidence interval.
Source: USDA Forest Service 2002.

consider outdoor recreation an important part of their lifestyle. Between 2001 and 2002, approximately 73 percent of Oregon households reported participation in outdoor recreation activities. The survey also highlights the demand for outdoor recreation opportunities close to home. Passive "viewing" activities are most popular among Oregonians, although running and walking for exercise are also important (fig. 48).

Cordell et al. (2004) provided estimates from the NSRE for participation on a state-by-state basis (fig. 49), and there is considerable overlap in the types of activities investigated in Oregon's SCORP and the NSRE. However, each survey includes some unique activities, and the phrasing of questions is often different (e.g., the NSRE asks about "coldwater fishing," whereas the SCORP asks about "fishing from a bank"). These differences make it somewhat problematic to compare findings directly. Nevertheless, some similarities and differences are readily apparent in the two sets of findings. Picnicking, sightseeing, and hiking emerge among the most popular activities in both studies; camping, off-road driving, and motor boating are in the middle; and kayaking, horseback riding, and hunting are less popular. The actual estimates of participation are dramatically different for most items, however, even for some of those apparently phrased in the same way (such as picnicking). The SCORP estimates that 23 percent of Oregonians go picnicking, compared to an estimate of 62 percent from the NSRE. Although the exact reason for these differences is unclear, it may partly result from the NSRE including only people age 16 and older, whereas the Oregon SCORP includes all state residents. If children participate at lower rates, including them in the SCORP estimates would lower the overall per capita participation rates. It is also possible that differences result from methodological differences that are not easily discernable in published documents, like different instructions to respondents, different ways of weighting data from different samples, or techniques used to extrapolate from household participation rates to individual participation rates.

As part of the Oregon SCORP study, nonresidents from bordering counties in California, Washington, and Idaho were surveyed about their recreation in Oregon. Similar to Oregonians, running and walking for exercise accounted for the most user days (Oregon Parks and Recreation Department 2003). However, RV/trailer camping followed close behind and was by far the most popular summer peak season activity.

In considering future trends for outdoor recreation in Oregon, two state-wide sources of information are available. The first compares "user occasions" from the 1987 SCORP with the 2002 SCORP (table 15). User occasions account for both the number of participants and the frequency of their participation. These data indicate that, among the outdoor recreation activities that can occur on the national

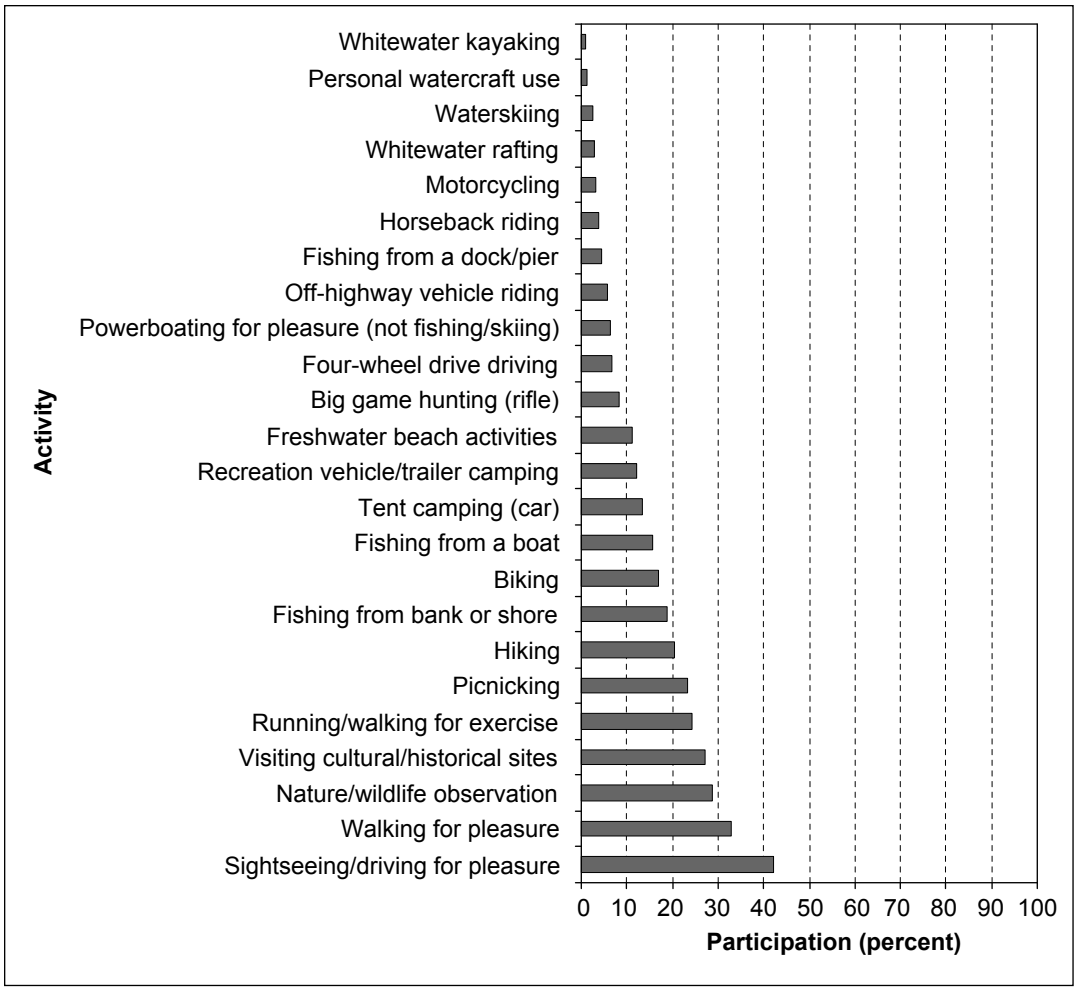

Figure 48—Oregon Statewide Comprehensive Outdoor Recreation Plan data on activity participation, 2002 (Oregon Parks and Recreation Department 2003).

forests, the top four most significant growth activities statewide were nature/wildlife observation, nonmotorized boating, big game hunting, snowmobiling, and RV camping. Activities that suffered a significant loss in participation were horseback riding, backpacking, picnicking, and car (tent) camping. It is important to remember that the SCORP metric–activity occasions–reflects the overall large increase in state population as well as changes in per capita participation. Thus, the number of hunters increased, even though–when expressed as per capita participation–this activity is stable or declining.

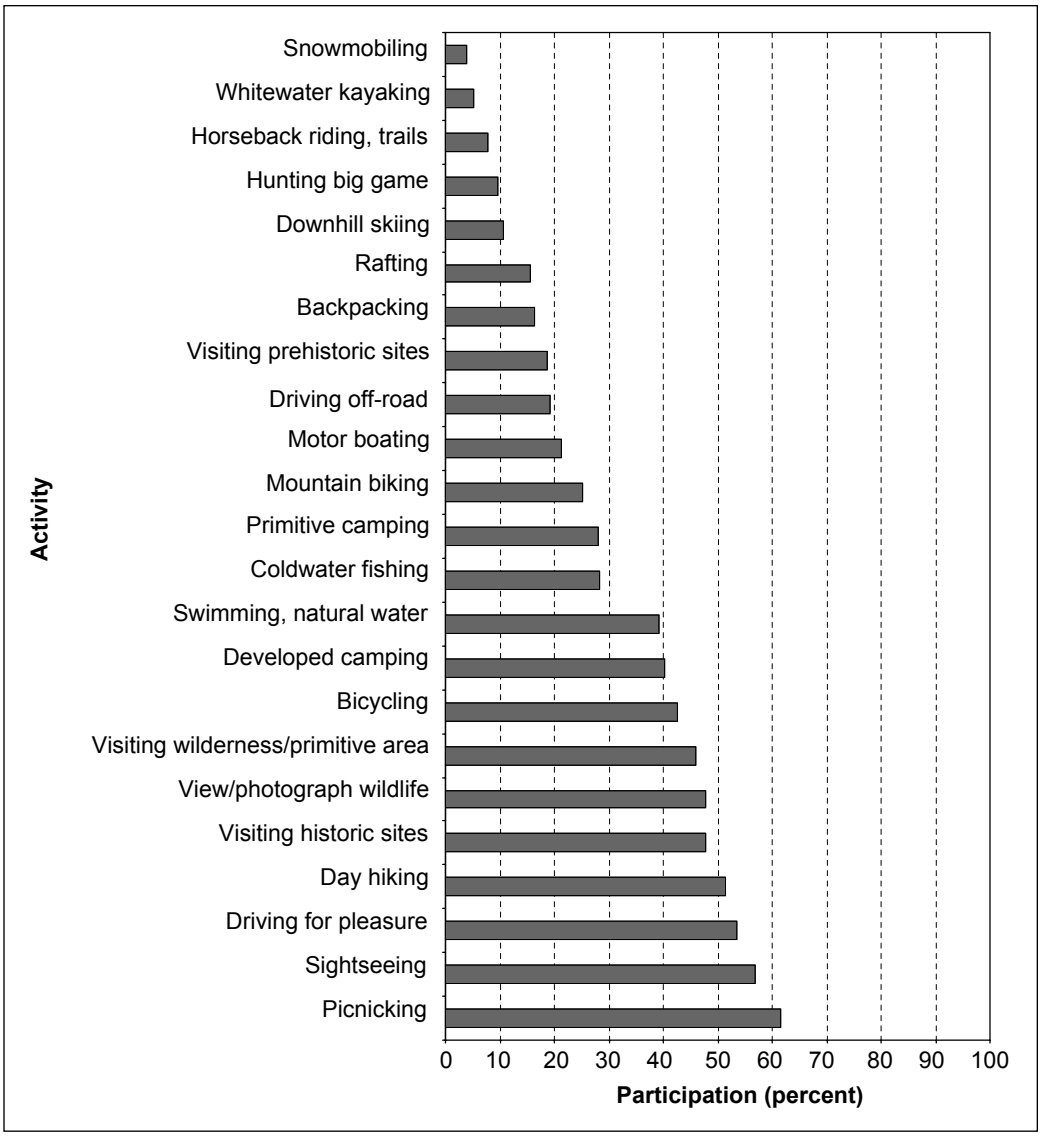

Figure 49—National Survey on Recreation and the Environment data on activity participation of age 16 and older, Oregon residents (Cordell et al. 2004).

Table 15—Change in activity user occasions in Oregon, 1987-2002

Activity	2002 user occasions	Change, 1987-2002[a]
	Thousands	*Percent*
Nature/wildlife observation	17,633	170.0
Nonmotor boating	2,211	137.9
Big game hunting (bow)	532	124.0
Snowmobiling	416	97.2
Recreation vehicle camping	11,033	95.5
Big game hunting (rifle)	3,988	69.5
Fishing from boat	5,242	44.3
OHV riding	2,162	38.4
Bird, small game hunting	1,500	30.1
Downhill skiing	2,279	29.7
Waterskiing	1,379	27.2
Sightseeing/driving	12,343	21.4
Boat camping	780	17.4
Beach activities (fresh and saltwater)	9,442	11.3
Outdoor photography	4,820	4.3
Power boating (ocean, lake, or river)	2,751	3.1
Day hiking	4,506	0
Four wheeling	2,256	-3.0
Wind surfing	182	-13.6
Car camping (tent)	2,689	-23.5
Picnicking	3,999	-24.4
Backpacking	1,147	-29.2
Horseback riding	2,111	-31.5

[a] Percentage of change in the number of user occasions (Source: Oregon Parks and Recreation Department 2003).

In addition to the SCORP trends, some trend data are available for specific activities or sites. In particular, Oregon State Marine Board studies illustrate trends in registrations of boats (all motorized craft and sailboats longer than 12 feet). These data (fig. 50) show boat registrations rose until about 1997 and have been level since then.

The Oregon Department of Fish and Wildlife publishes records of sales and fees for hunting and fishing licenses. Figure 51 depicts trends in the resident, annual licenses. It does not include daily or weekly licenses, nonresident licenses, or juvenile angler/hunter licenses, although these data are also available. These numbers show a slight, but steady, decline in hunting and fishing over the past two decades.

Another set of trend data is available for Oregon state parks, based on counts of day and overnight visitors collected by the Oregon State Park and Recreation Department (http://www.oregon.gov/OPRD/). Although state parks often have more developed facilities and their use may not match national forest trends closely, the data are generally reliable, especially for overnight use. Figure 52 shows that total use of Oregon state parks has increased since 1971, but appears to have leveled off

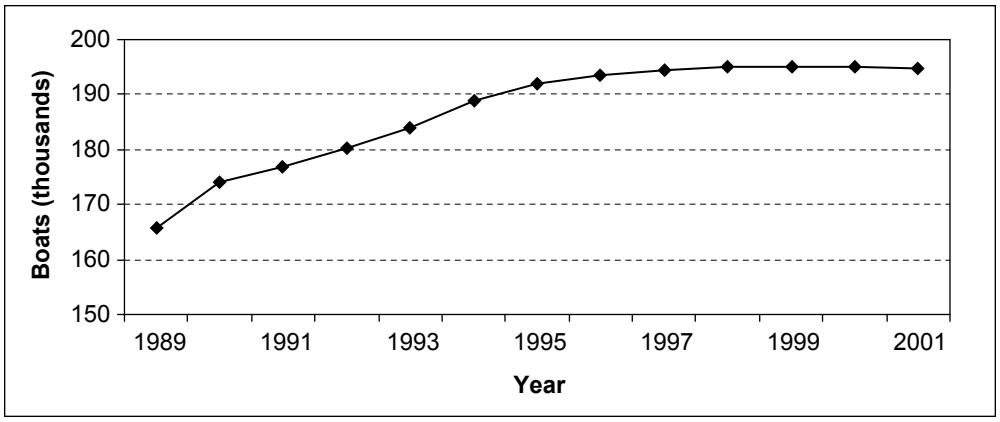

Figure 50—Boat registrations in Oregon, 1989-2001 (Oregon State Marine Board 2002).

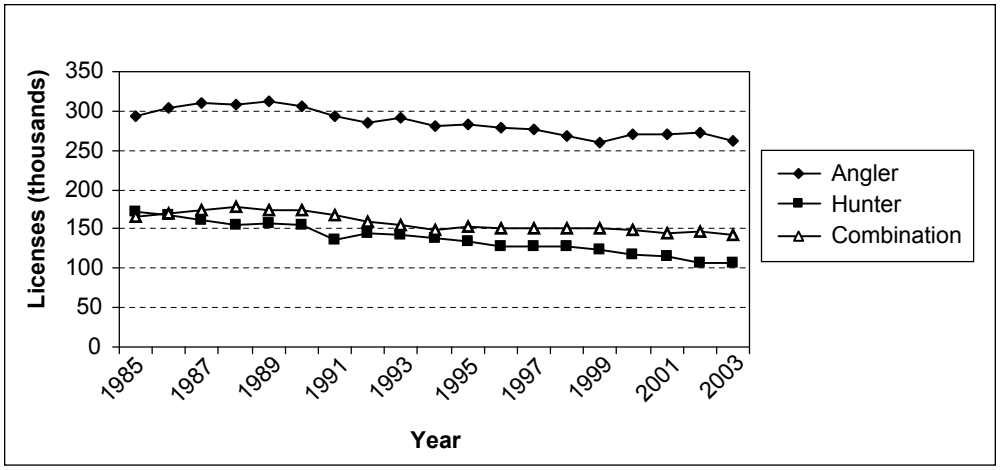

Figure 51—Trends in resident adult annual hunting and fishing license sales in Oregon, 1985-2003 (Oregon Department of Fish and Wildlife 2004).

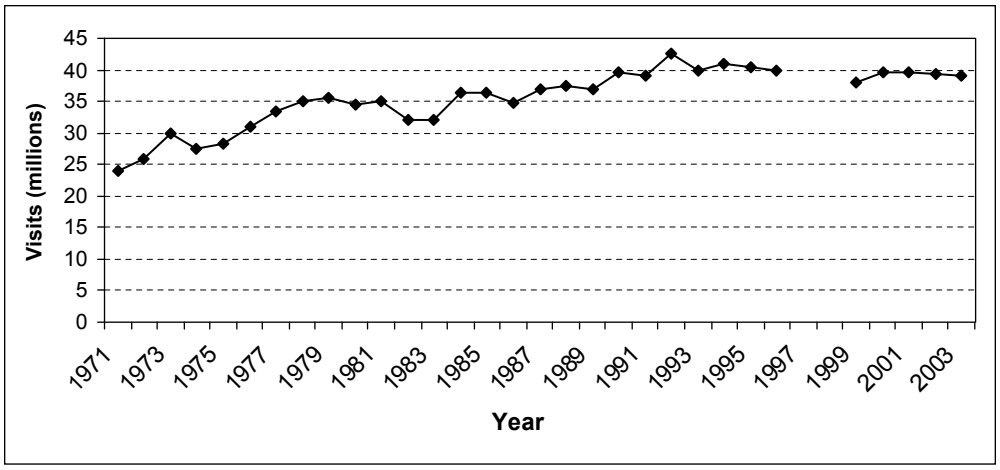

Figure 52—Trends in Oregon state park visits, 1971-2004 (Oregon Parks and Recreation Department 2006).

around 1990. (These data were combined from different sources, and there is a gap in information from 1997 to 1999.)

The second way to explore future trends is to compare anticipated supply with projected demand. In Oregon's SCORP, 11 recreational regions were established throughout the state, with each providing information on supply (of all recreation facilities and lands), demand, and resource deficiencies. The SCORP analysis shows that, as of 2002, demand for some exceeded supply in three or more regions of the state. These include the following (Oregon Parks and Recreation Department 2003):

- Running/walking for exercise on surfaced and unsurfaced local community or backcountry trails (four regions)
- Four-wheel driving on designated 4 by 4 motorized trails (four regions)
- Fishing from a dock or pier (three regions)
- Biking on surfaced local community or backcountry trails (three regions)

The Oregon SCORP also compares anticipated future peak (weekend/holiday) demand to supply, to identify likely deficiencies over a 5-year planning horizon (table 16). These projections use a consistent 10 percent estimated increase in peak user occasions for all activities across the planning horizon. (This is not in line with national projections, which predict different rates of change for different activities.) According to this analysis, for activities that have accepted guidelines regarding facility capacity or provision, no activity is expected to have demand that exceeds available supply in the near future across the state as a whole. For many activities, the supply is expected to well exceed demand. Many activities do not have established capacity guidelines, however, so it is not possible to determine from this analysis if there will be a shortage of opportunities or facilities for them.

The Oregon Parks and Recreation Department draws recreation planners' attention to several conclusions. As evident from the 2000 U.S. census, an increasing population, a more diverse citizenry, and a growing gap between the rich and poor are influencing recreation trends. Recreationists are requesting that managers consider localized attachments to specific places. It should also be noted that recreationists have less free time, and therefore take more day or weekend trips near where they live. And as "baby boomers" age, they desire more amenities that may be met through technology. Also, rural communities are beginning to take interest in tourism (especially ecotourism and cultural tourism) as a viable economic alternative or enhancement to their towns (Oregon Parks and Recreation Department 2003).

An increasing population, a more diverse citizenry, and a growing gap between the rich and poor are influencing recreation trends. Rural communities are beginning to take interest in tourism as a viable economic alternative or enhancement to their towns.

Washington—The IAC describes the existing situation and forecasts the future demand for outdoor recreation through Washington's 2003-2007 SCORP (IAC 2002, 2003). The plan looks at recreational activities across 10-year periods and

Table 16—Projections for peak user occasions and predicted gap between supply and demand in Oregon

Activity	Peak user occasions 2002	Peak user occasions 2007	Supply/ demand gap
Backpacking	711,170	782,286	+
Big game hunting	2,791,354	3,070,489	No guide
Biking (local and backcountry trails, all surfaces)	1,154,499	1,269,949	+
Birdwatching	7,301,857	8,032,042	No guide
Boat ramp use	5,284,557	5,813,013	Even
Car camping (tent)	2,043,710	2,248,081	No guide
Developed site camping (all types)	1,894,897	2,084,386	+
Downhill skiing/snowboarding	1,500,725	1,650,797	+
Fishing from a boat	3,093,227	3,402,550	No guide
Fishing from a dock/pier	530,524	583,577	+
Fishing from bank/shore	3,317,588	3,649,346	No guide
Four-wheel driving, on and off trails	1,330,181	1,463,199	No guide
Hiking (all locations, surfaces)	2,568,465	2,825,312	No guide
Hiking (unsurfaced local or backcountry trails)	1,627,393	1,790,132	+
Horseback riding (local or backcountry trails, all surfaces)	807,519	888,270	+
Hunting (all types)	4,624,882	5,087,371	+
Motor boating	1,760,761	1,936,838	No guide
Nature/wildlife observation	8,287,743	9,116,517	No guide
Picnicking	2,639,105	2,903,015	+
Personal watercraft use	688,085	756,893	No guide
OHV, on and off trails	1,362,343	1,498,577	No guide
Recreational vehicle camping	8,164,598	8,981,058	+
Sightseeing/driving for pleasure	7,653,193	8,418,512	No guide
Snowmobiling, on and off trails	258,041	283,845	No guide
Visiting cultural/historic sites	1,599,830	1,759,813	Even
Whitewater kayaking	233,513	256,865	No guide
Whitewater rafting	510,359	561,396	No guide

+ indicates oversupply. "No guide" indicates no guideline for supply.
Source: Oregon Parks and Recreation Department 2003.

attempts to make projections of future recreation participation. According to these reports, walking, hiking, outdoor sports, and nature activities are among the highest participation activities in the state (fig. 53).

Cordell et al. (2004) also provided participation estimates for Washington state residents age 16 and older from the NSRE (fig. 54). Estimates for hiking, hunting, and horseback riding participation are approximately the same in the two studies, but the NSRE estimates are much higher for most activities. Presumably, this is because the Washington SCORP data include children, who participate at a lower rate, whereas the NSRE represents adults (16 years of age and older) only. Nevertheless, the differences in estimates for some activities seem larger than can be explained by this fact alone. For instance, the NSRE estimates that 64 percent of Washingtonians go picnicking in a given year, compared to only 20 percent based on the SCORP. Again, such differences may be due to different data collection methods, assumptions used in analysis, or other factors that are not obvious from published reports.

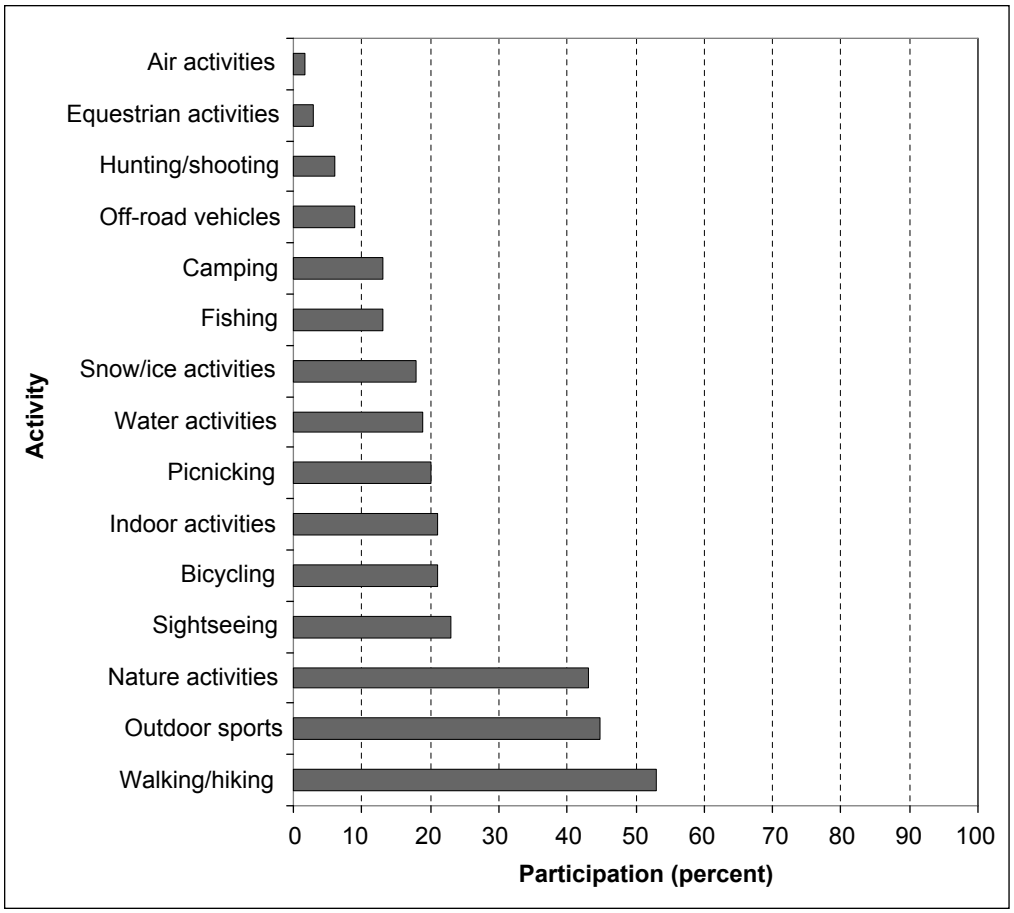

Figure 53—Washington Statewide Comprehensive Outdoor Recreation Plan data on activity participation, 2000 (IAC 2002).

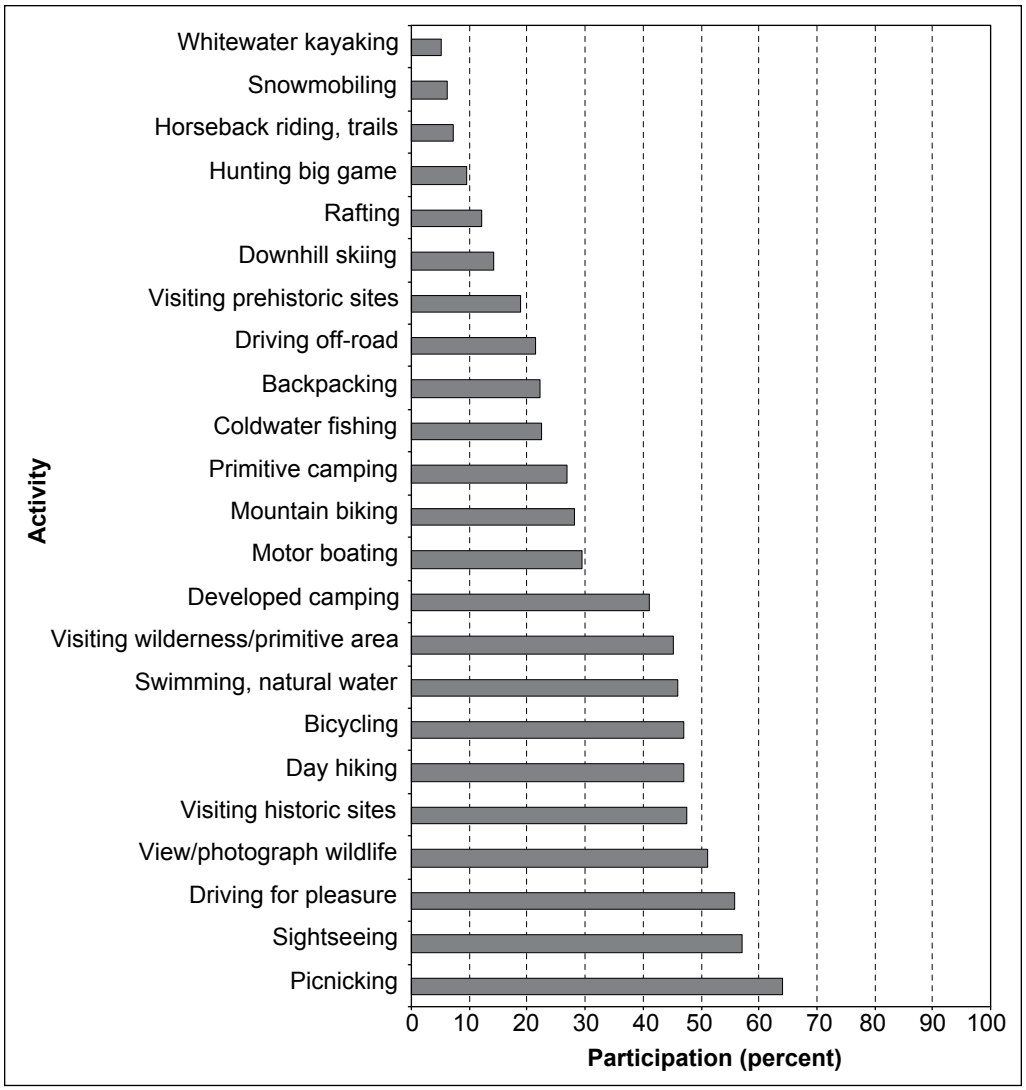

Figure 54—National Survey on Recreation and the Environment data on activity participation of age 16 and older, Washington state residents (Cordell et al. 2004).

Past Washington SCORP studies can be used to assess change over time. However, the IAC's conclusions about trends over the past three decades should be interpreted with some caution. Although each of the three survey efforts used a telephone contact with a mail survey followup, the exact use of these techniques was different each time. The 1989 survey used a combination of recall and a participation diary. In 1999, the survey relied on a statewide panel of people who were recruited by telephone to keep activity diaries for an entire calendar year. Also, results from 1989 made estimates at the household level, whereas the 1999 survey (fig. 53) estimated individual participation rates (IAC 2003). The surveys are also difficult to compare because some activities were classified differently at different

points in time. For example, in 1979 and 1999, bicycling was in a category by itself, but in the 1989 survey, biking was considered in the nonmotorized riding category that included equestrian use.

Although establishing trends may be difficult, the data do suggest change in outdoor recreation activity over time. The most recent SCORP specifically attempts to project 10- and 20-year demand, as described in the document *Estimates of Future Participation in Outdoor Recreation in Washington State* (IAC 2003). Unlike the Oregon SCORP, which only compares past estimates and makes uniform assumptions about growth, Washington's projections are made by taking the national 1994-95 NSRE projections and then adjusting for specific statewide historical trends, local concerns, and known and expected supply. Independent analysis is done for each type of activity. Table 17 highlights categories of major interest and the anticipated change in the future number of outdoor recreationists compared to current levels.

Some general observations of the Washington surveys show, for example, that fishing and hunting are expected to decline in the state, while–at least in the immediate future–snowmobiling is expected to continue its recent upswing, which has been 50-percent growth over the past 10 years (IAC 2003). Activities expected to grow at least 30 percent in Washington within 20 years are walking, nature activities, picnicking, visiting a beach, and canoeing/kayaking.

Although reports of increased crowding continue at some recreation sites, according to information collected at focus group meetings in 2001, overall outdoor recreation activities may be declining in terms of the percentage of total population in the state (IAC 2003). Thus, in some cases, increases in total numbers (as represented in table 17) are due to the expected increases in the state's total population.

One unique source of data in Washington is from recreational vehicle registrations, reported by the Washington Office of Financial Management for each year between 1979 and 2002 (Washington Office of Financial Management 2006a). These data show stable rates of travel trailer ownership through the 1980s, with recent large increases (fig. 55). Motor home registrations, too, have increased recently, and OHV registrations have increased substantially. If these trends continue, there is likely to be increased demand for RV camping facilities and OHV trails.

Washington state data on hunting and fishing licenses show that angling has fluctuated between about 950,000 and 1 million participants over recent years (Washington Department of Fish and Wildlife 2006), whereas big game hunting has had between 189,000 and 195,000 participants (fig. 56). The annual variation in these activities seems minor.

Table 17—Projected changes in participation in outdoor activities in Washington

Activity	Estimated change		Notes
	10 years	20 years	
Snowmobiling	+42 percent	No estimate	No change in supply, therefore expect crowding. Use NSRE projections for 10 years, uncertain beyond that
Cross-country skiing	+23 percent	No estimate	No change in supply, therefore expect crowding. Use NSRE projections for 10 years, uncertain beyond that
Downhill skiing	+21 percent	No estimate	No change in supply, therefore expect crowding. Use NSRE projections for 10 years, uncertain beyond that
Walking	+23 percent	+34 percent	Agrees with NSRE projections
Nature activities	+23 percent	+37 percent	Agrees with NSRE projections
Visiting a beach	+21 percent	+33 percent	Agrees with NSRE projections
Canoeing/kayaking	+21 percent	+30 percent	Agrees with NSRE projections
Picnicking	+20 percent	+31 percent	Agrees with NSRE projections
Bicycle riding	+19 percent	+29 percent	Agrees with NSRE projections, but expects growth to come from youth
Nonpool swimming	+19 percent	+29 percent	Agrees with NSRE projections
Hiking	+10 percent	+20 percent	No new trails and aging population (lower than NSRE national projections)
Sightseeing	+10 percent	+20 percent	Local trend has been declining (lower than NSRE national projections)
Motor boating	+10 percent	No estimate	Local trend has been for slower growth (lower than NSRE national projections)
Recreation vehicle camping	+10 percent	+20 percent	Agrees with NSRE for 10 years, but expects slower growth after that
OHV riding	+10 percent	+20 percent	Agrees with NSRE projections
Team sports	+6 percent	+12 percent	Not addressed in NSRE
Primitive camping	+5 percent	No estimate	High levels of regulation and difficult access (lower than NSRE national projections)
Backpacking	+5 percent	+8 percent	No change in supply, increased crowding (lower than NSRE national projections)
Equestrian activities	+5 percent	+8 percent	Lower participation over 20 years and pressure for rural development (lower than NSRE national projections)
Fishing	-5 percent	-10 percent	Local declines over 20 years (opposite to NSRE national projections)
Hunting/shooting	-15 percent	-21 percent	Agrees with NSRE projections

NSRE = National Survey on Recreation and the Environment.
Source: IAC 2003.

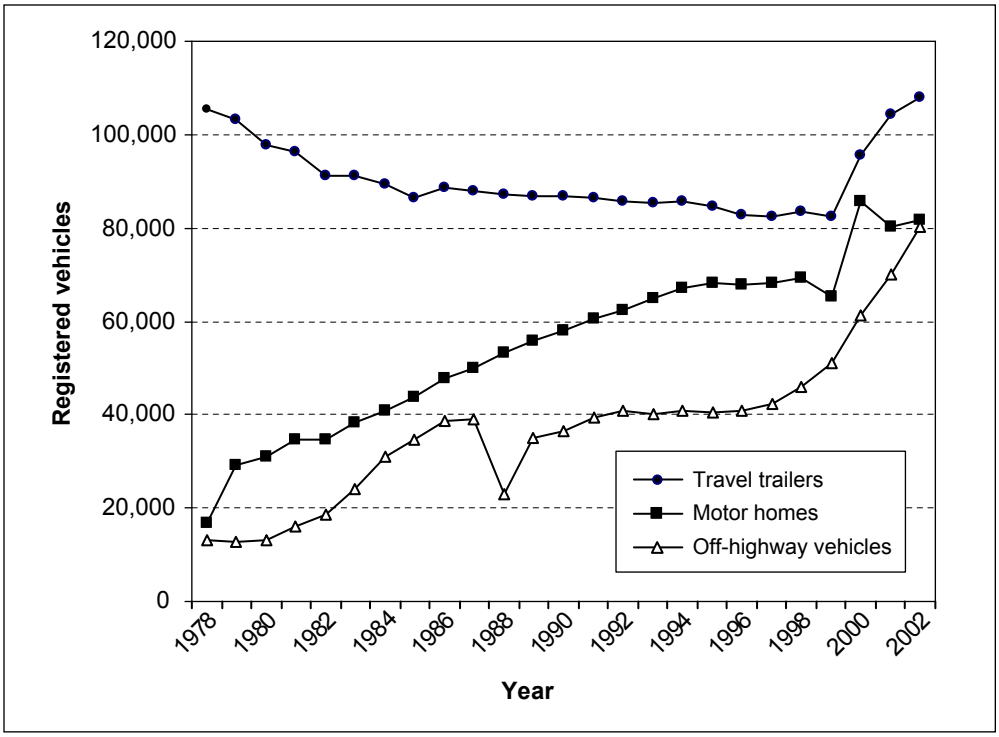

Figure 55—Washington recreational vehicle registrations, 1979-2002 (Washington Office of Financial Management 2006a).

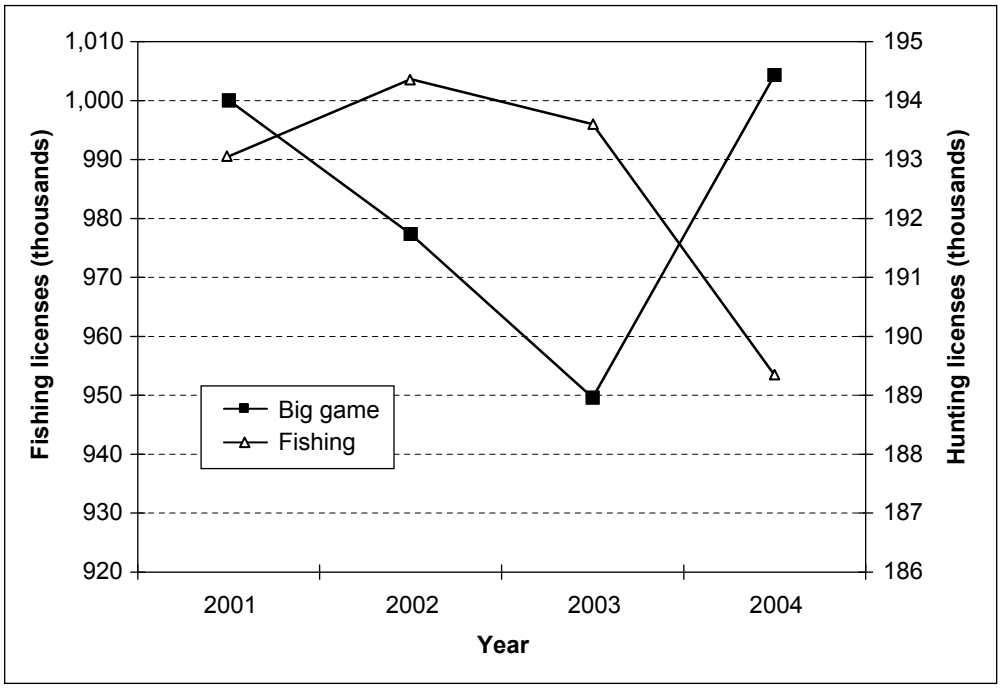

Figure 56—Trends in Washington state hunting and fishing license sales (Washington Department of Fish and Wildlife 2006).

Washington state parks provide estimates of annual attendance at each of 21 coastal parks and 230 parks grouped together for the years between 1996 and 2001. Figure 57 shows the total number of visitors, which remained near 50 million between 1996 and 2001 (Washington Office of Financial Management 2006b).

Participation rates show that the most popular activities are similar to those in other states, although per capita participation rates appear to be much higher in Alaska.

Alaska—In a land of breathtaking vistas, rich fish and wildlife resources, and potent with the lure of adventure, it is no wonder that nearly all Alaskans consider outdoor recreation an important part of their lifestyle. More than half of Alaska's 332 million acres of public land is available for outdoor recreation (Alaska Department of Natural Resources 2004). According to the Alaska SCORP, however, major issues are adequate public access to outdoor recreation areas and crowding in those areas that are easily accessible.

Participation rates as determined in the recent SCORP analyses show that the most popular activities are similar to those in other states (fig. 58), although per capita participation rates appear to be much higher in Alaska. Figure 58 presents adult participation from the 1997 Alaska SCORP, based on a random sample of Alaska residents, and the 2004 SCORP (Bowker 2001). For many activities, participation rates did not change, but for some (sea kayaking, backcountry skiing, and day hiking), rates increased. Participation rates slightly declined for power boating, fishing, picnicking, and driving for pleasure. Participation rates from the SCORPS for some activities are higher than estimated in the NSRE. Figure 59 presents the

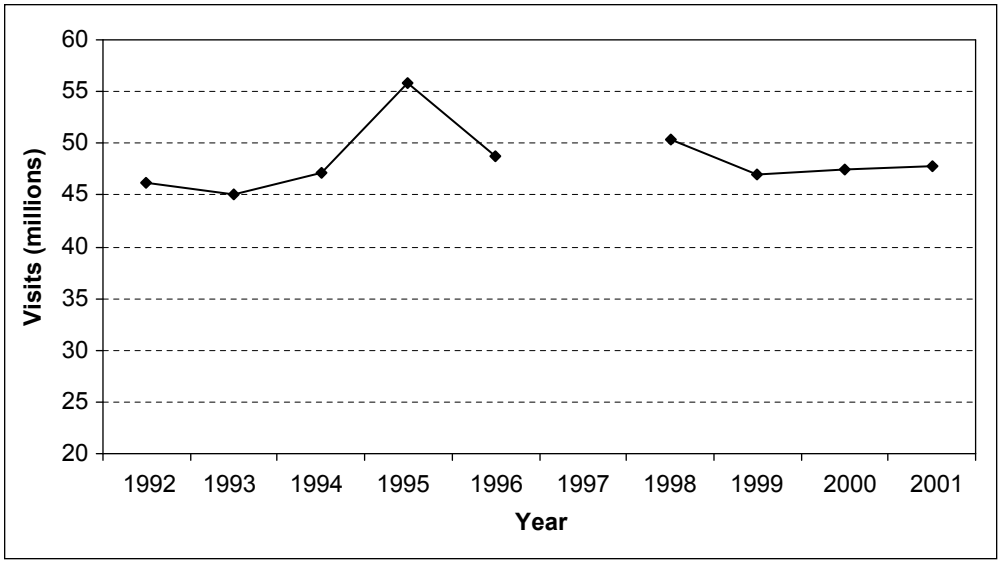

Figure 57—Trends in visitation to Washington state parks, 1992-2001 (Washington Office of Financial Management 2006b).

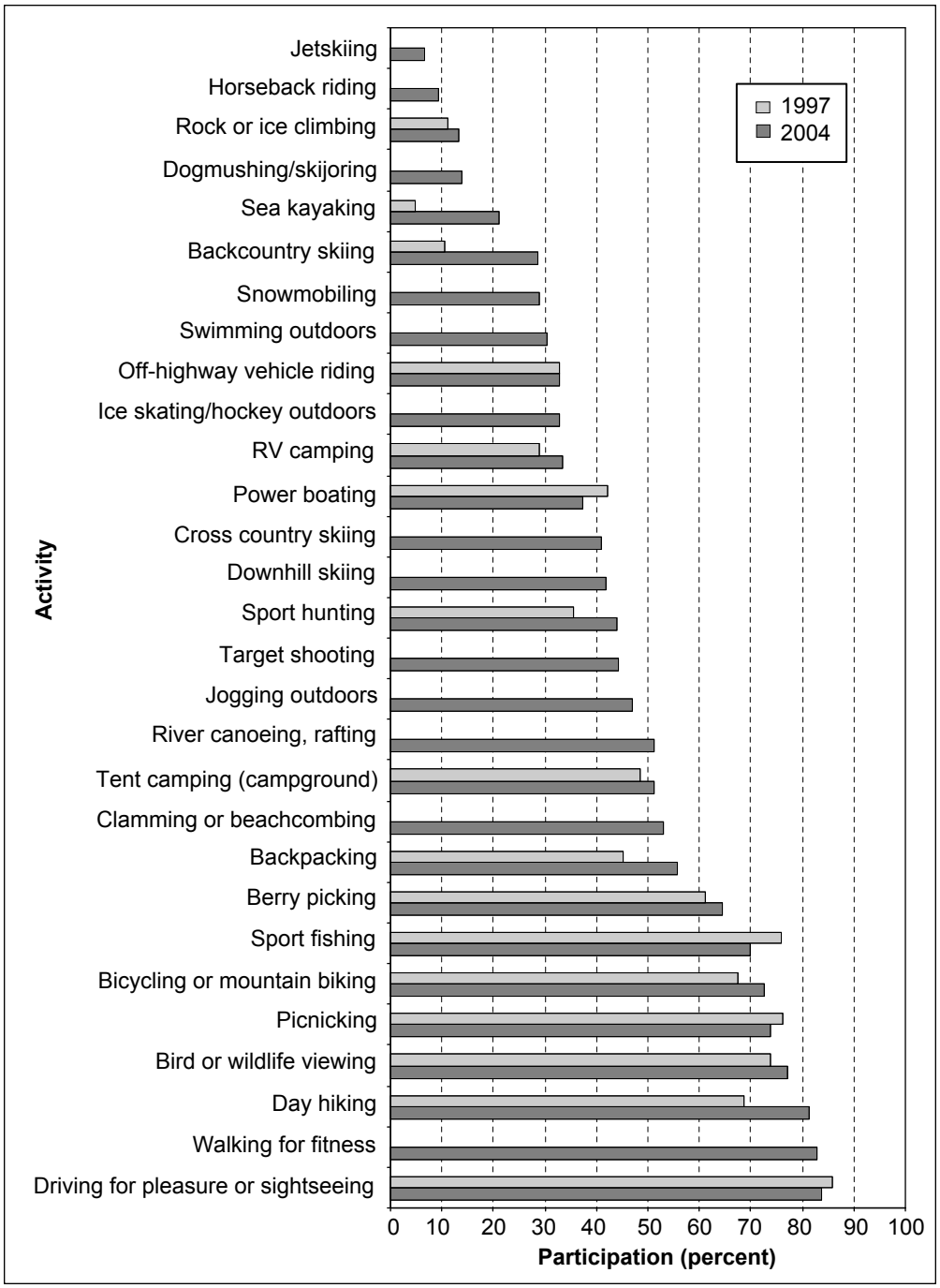

Figure 58—Alaska Statewide Comprehensive Outdoor Recreation Plan data on activity participation, 2004.

1994-95 NSRE data for Alaska (from Bowker 2001) and the more recent data from Cordell et al. (2004). These show that most activities have been stable in participation, although backpacking, day hiking, and developed camping appear to have increased while motor boating and fishing have declined. The reasons for the differences in the absolute participation rates between the SCORP and the NSRE are unknown, but could be due to a variety of methodological differences. For example, because SCORP respondents were people 18 years of age or older, and because there may have been unreported response bias, participation rates reported in the SCORP may be artificially high.

Outdoor recreation in Alaska–both by state residents and tourists–has grown rapidly over the past several decades and continues to increase each year.

Outdoor recreation in Alaska–both by state residents and tourists–has grown rapidly over the past several decades and continues to increase each year. According to Northern Economics, Inc., an estimated 1.4 million visitors came to the state

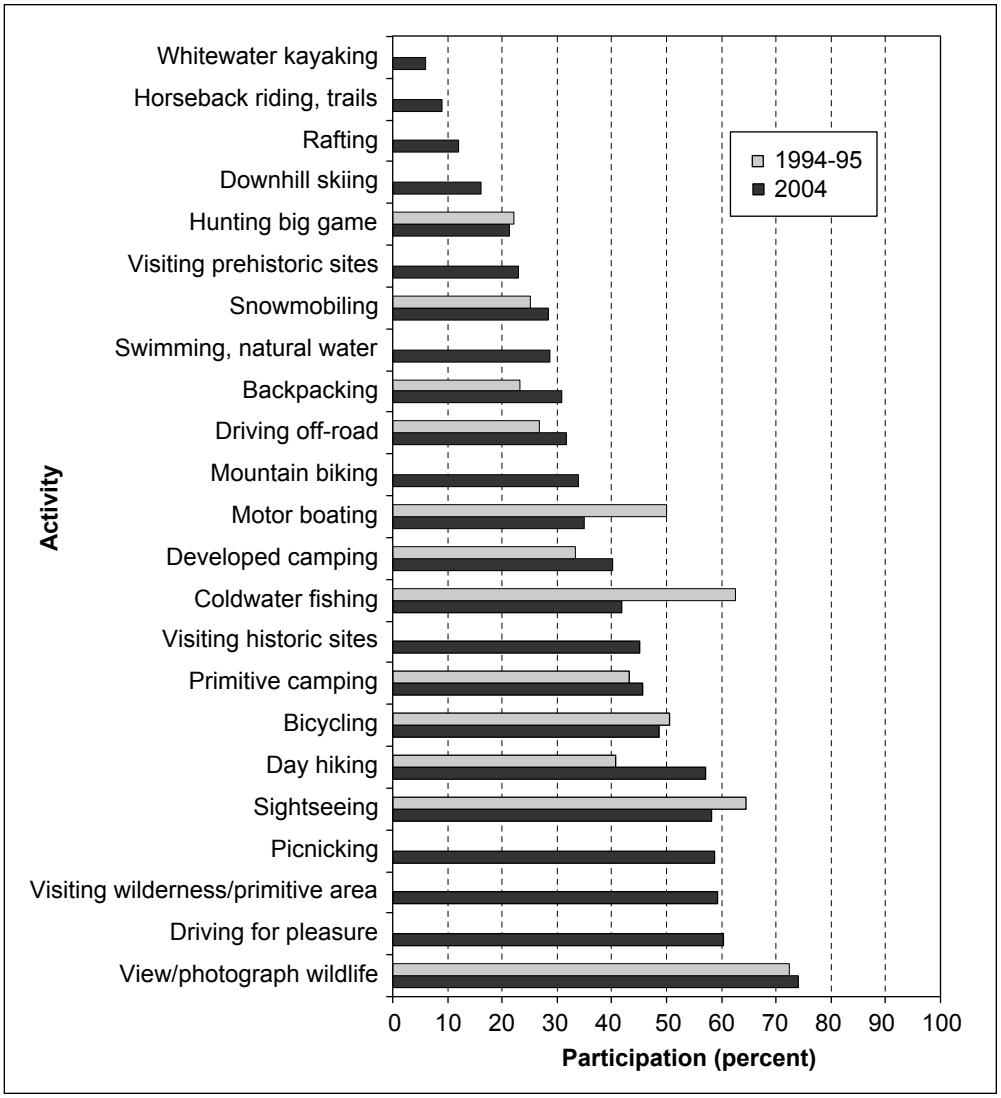

Figure 59—National Survey on Recreation and the Environment data on activity participation of age 16 and older, Alaska residents (Bowker 2001, Cordell et al. 2004).

during summer 2004, a 9-percent increase from the previous season (NEI 2004). This annual growth is slightly lower than the 10-percent growth reported throughout the 1990s (Colt et al. 2002). About 75 percent of the 2004 visitors were tourists, traveling for "vacation and pleasure," and most arrived by plane or cruise ship (NEI 2004).

Cruise tourism is a significant industry in Alaska, and cruise passengers contribute to outdoor recreation demand. In 2003, more than 770,000 cruse ship visitors arrived in Juneau, a main hub for the Inside Passage cruise route. Between 1991 and 2003, the average annual increase in cruise ship visitation to Juneau was about 9.7 percent (fig. 60), and there is no near-term indication of slower growth (Schroeder et al. 2005).

Tourism is not evenly dispersed throughout the state. The docking itinerary of the cruise lines influences where and what type of recreation is sought by cruise passengers during their time ashore. Popular shore excursions are ones where passengers can see or do a lot in a few hours. Helicopter touring of the Juneau icefield is one popular activity that illustrates the extreme growth in the industry. In 1984, fewer that 2,000 tourists went on this tour, whereas by 2001, more than 88,000 visited the icefield (Schroeder et al. 2005).

Denali and Glacier Bay National Parks and the Chugach and Tongass National Forests all experience substantial recreation demand from Alaska residents. In 2003, visitation estimates were 1.31 million, with more than 46 percent of all visitors 50

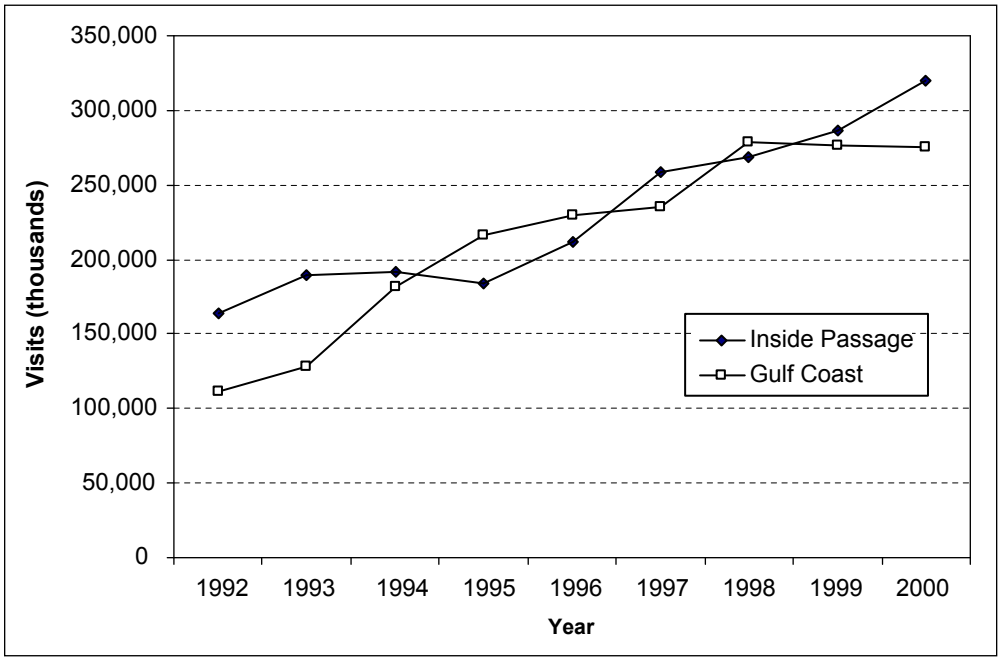

Figure 60—Cruise ship bed capacity in Alaska, 1992-2000 (Colt et al. 2002: 39).

The independent traveler has always been an important asset to Alaska's nonresident tourism, and this segment continues to grow.

years or younger, indicating a trend toward younger visitors when compared to the 1996 calculations (Alaska Department of Natural Resources 2004).

The independent traveler has always been an important asset to Alaska's nonresident tourism, and this segment continues to grow. In 2001, independent travelers made up 30 percent of the tourist market, or 360,840 visitors. Data reported in Colt et al. (2002) show a significant increase in arrivals from outside the state (fig. 61). Although not all tourists participate in outdoor recreation, many visit public lands. Guided recreation and tourism, such as wildlife viewing tours, whitewater rafting, and charter fishing, are some of the recreational activities popular with tourists.

Fishing is a popular activity for both residents and visitors to Alaska. Data from the Alaska Department of Fish and Game (ADFG) reveal that the number of sport-fishing licenses issued to residents has remained steady over the last 20 years, and the U.S. Fish and Wildlife Service in 1996 estimated that 55.6 percent of Alaskan adults participated in fishing (Bowker 2001). The number of sport-fishing licenses issued to nonresidents increased at a rate of 6.4 percent between 1980 and 2002. Statewide, 1.5 nonresident fishing licenses were sold for each resident license (Schroeder et al. 2005).

Because Bowker (2001) presented estimates from the 1997 SCORP and the 1994-95 NSRE for the state, it is possible to assess recent past trends for outdoor recreation in Alaska. Figures 58 and 59 compared these past estimates to the most

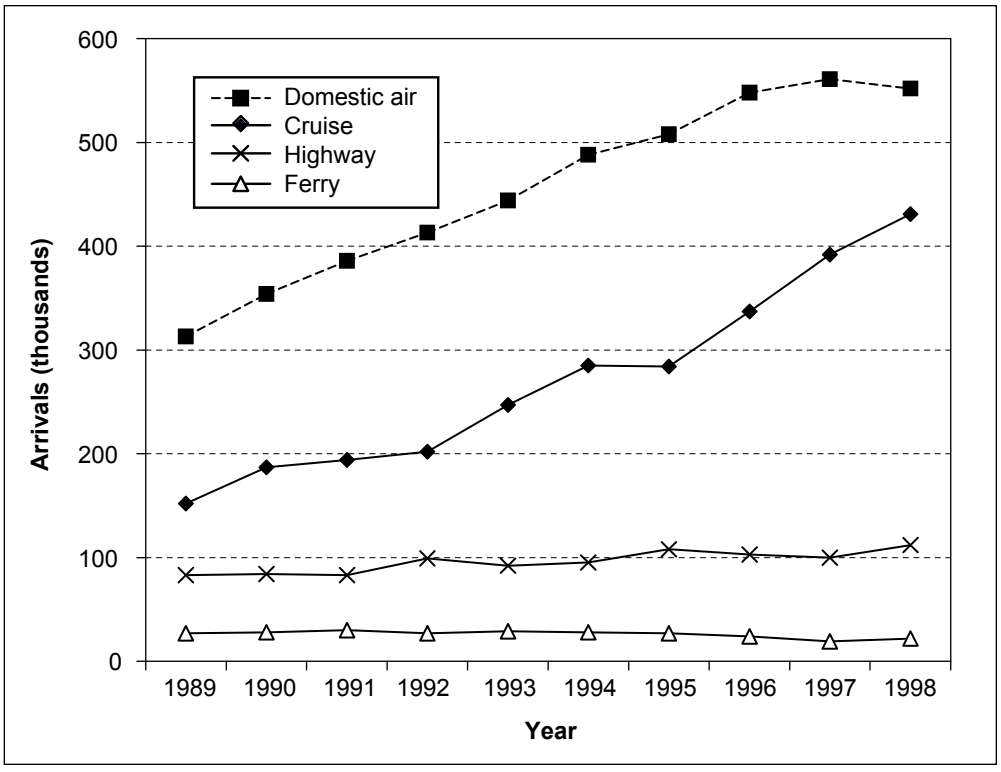

Figure 61—Summer (May through September) arrivals in Alaska (Colt et al. 2002: 37).

recent survey data. Although the two sets of data suggest relative stability for many activities, those activities that have changed are not always consistent in the two studies. Specifically, both show an increase in backpacking and a decline in sport fishing, but the SCORP indicates increase in sea kayaking, backcountry skiing, and day hiking.

It is important to remember that changes depicted in figures 58 and 59 are computed based on the percentage of the population participating in each activity, not the absolute number of participants. For activities showing an increased percentage of participation, the number of participants would have increased even more, owing to the growing state population. However, the state population only increased from 550,043 in 1990 to 655,435 in 2004, so gains resulting from population growth are smaller than in other states.

Figure 62 depicts regional trends in state park visitation provided by Alaska Department of Natural Resources (ADNR). Note that Colt et al. (2002: 42) also examined records of use of Alaska state parks, but they concluded that the available data were "unreliable." A final source of regional trend data within Alaska is from Twardock and Monz (Colt et al. 2002). These data showed fluctuations in guided overnight visits to backcountry in Prince William Sound between 1987 and 1998, but steady increases in the number of chartered visits. Cabin usage appears to have remained relatively stable, except for a decline in the late 1990s (fig. 63).

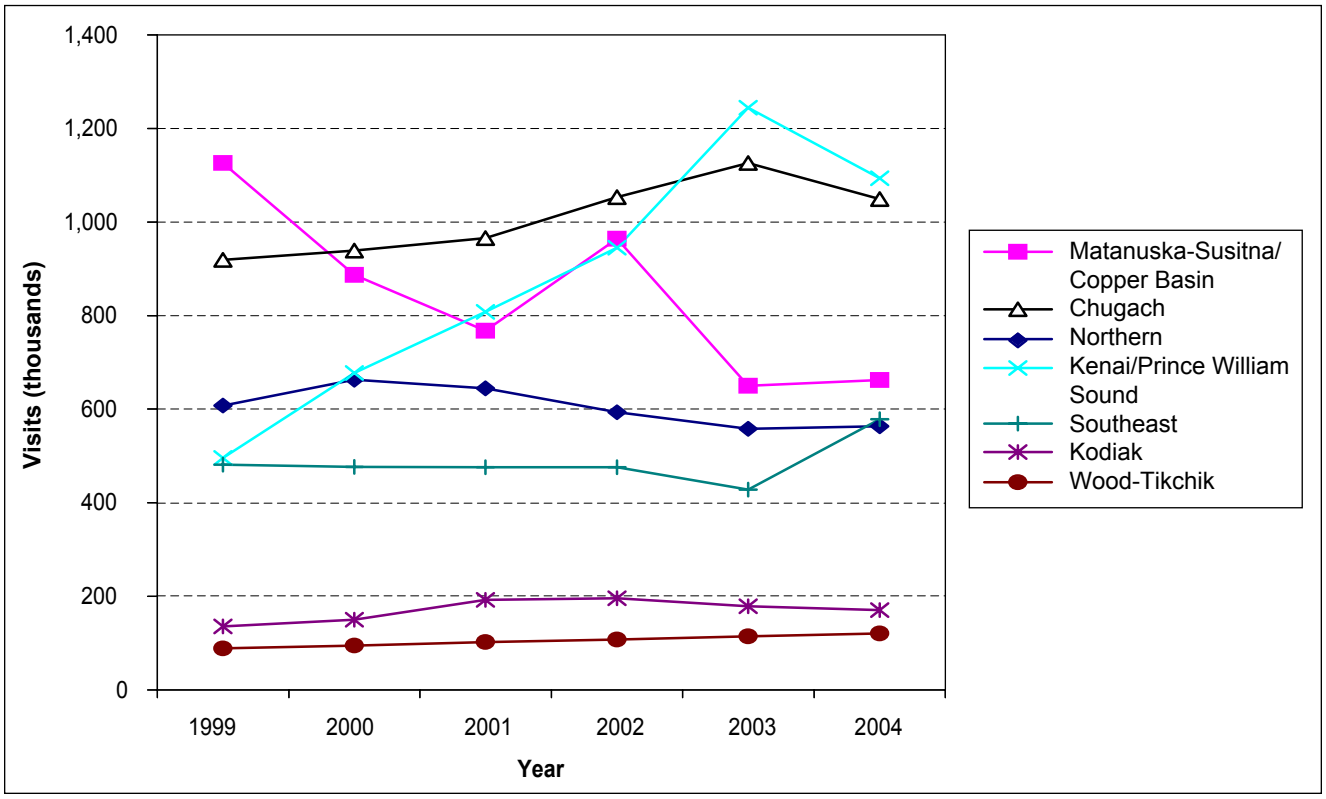

Figure 62—Trends in visits to Alaska state parks, by region, 1999-2004.

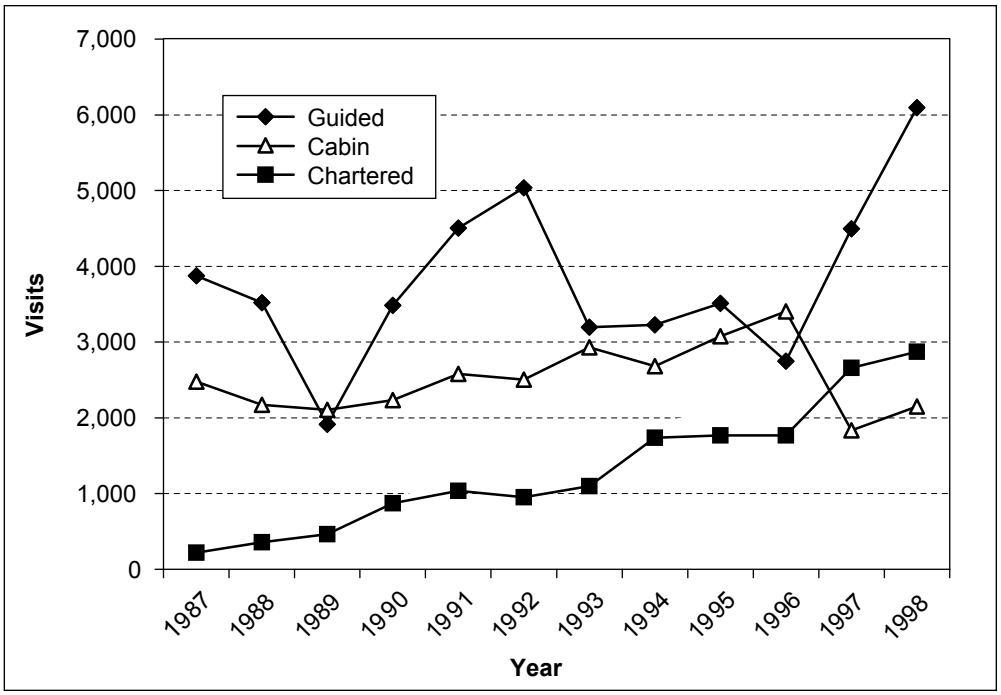

Figure 63—Trends in the number of backcountry overnight visits to western Prince William Sound (Colt et al. 2002: 33).

Bowker (2001) used three data sets (NSRE, Alaska SCORP, and U.S. Fish and Wildlife Service) to project participation in outdoor recreation in Alaska through 2020. Various predictors, including economic and sociodemographic factors (e.g., age, income, gender, and race) were used in conjunction with projected population changes to anticipate likely trends. Figure 64 shows the expected change (percentage of adult participants) between 2000 and 2020 from the SCORP and NSRE data sets. Despite the differences noted above in the base estimates of participation, the projected changes are similar in both models. Bowker concluded that, although most activities will grow at a rate that matches population growth, larger growth is expected for scenic driving, wildlife viewing, RV camping, fishing, and–especially–adventure activities such as backpacking, biking, and tent camping. Projected growth in the number of adult participants in wildlife-related activities based on the Fish and Wildlife Service data are similar to the other two sources: 20 percent growth in hunting, 27 percent growth in fishing, and 26 percent growth in wildlife viewing.

Conclusions

Recreation managers need good information about recreation visitation and visitor characteristics to make defensible, effective, and efficient decisions and to monitor the results of their actions. This report focuses on one type of data–outdoor recreation

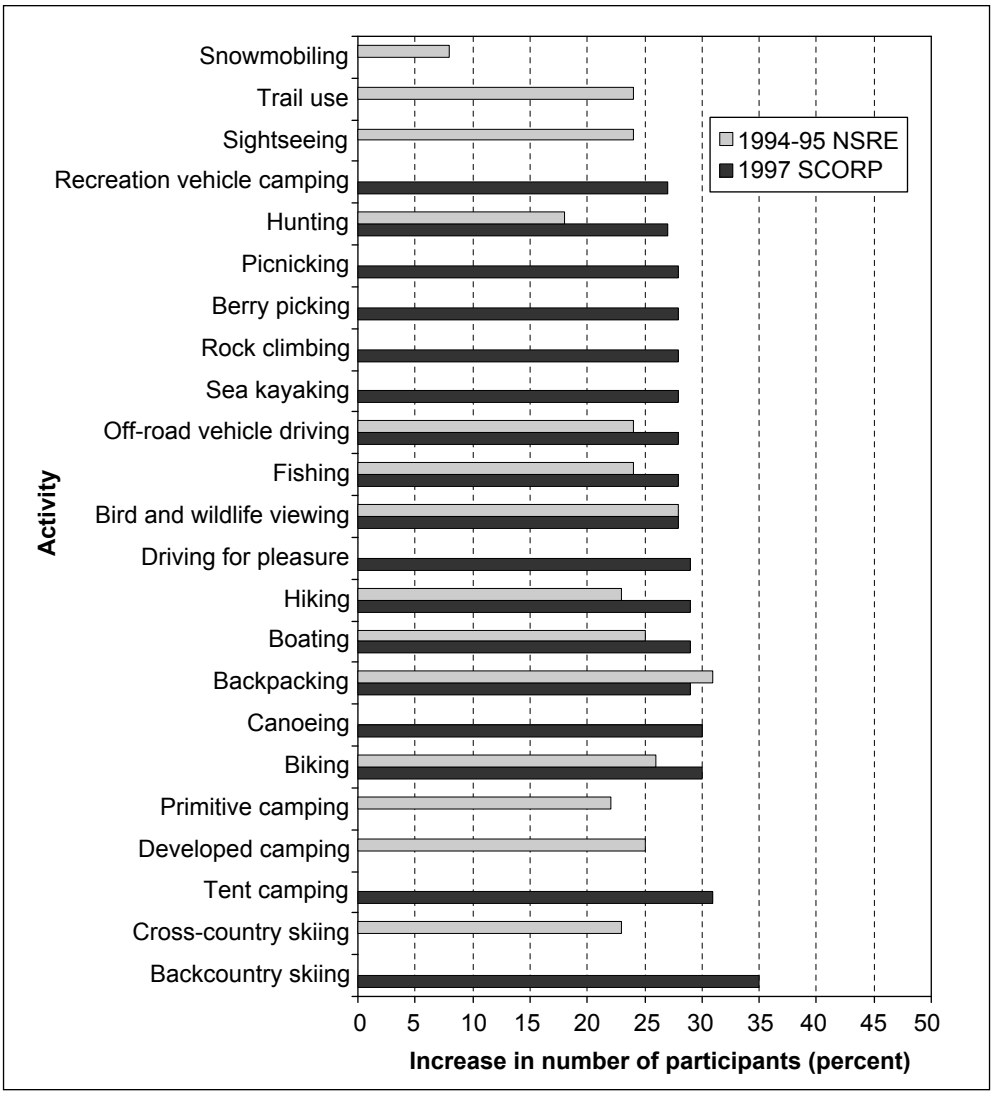

Figure 64—Projected change in the number of Alaskans participating in recreational activities, 2000-2020, based on Alaska Statewide Comprehensive Outdoor Recreation Plan and National Survey on Recreation and the Environment 1994-95 (Bowker 2001).

activity participation–in Oregon, Washington, and Alaska and uses population projections to make assessments of likely future trends in recreation demand for national forests and similar public lands. We critically reviewed a range of sources, comparing the findings to identify points of consensus and disagreement.

There is much information about trends available to recreation managers and planners. While we were preparing this document, many new reports were added to the online literature base. To assist the reader in locating sources of information on use or trends, the appendix presents various print and electronic sources we came across during our review. Our review identified several important themes, as explained below.

Quality of the Sources

We were favorably impressed with the rigor of the research methods employed in many of the sources we reviewed, particularly the long-term national efforts like the NSRE and the *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*. Most of the studies followed accepted practices and had sample sizes large enough to generate relatively precise and stable estimates. More recent reports, including both agency studies and private market research, carefully explain their sampling and data collection procedures. They tend to be less explicit about assumptions involved in extrapolating from samples to populations, however, and it is likely that these procedures account for some of the large differences in participation estimates. For example, if a stratified sample is obtained, data must be weighted appropriately to draw conclusions about the entire population. Additionally, it is not always clear which age groups (particularly children) are included in estimates. Because recreation managers generally must rely on published documents to assess data quality, it may be difficult for them to discern which data sources are directly comparable when assumptions and computational techniques are not explicitly reported.

Trend data for some activities display quite a bit of variation because participation is affected by many factors. We recommend that readers compare the trends depicted in the various sources rather than place too much weight on the precise number of participants estimated by one source for any given time.

Although response rates for the studies are well within typical levels–higher, in fact, than those obtained in most general population studies–nonresponse bias is a potentially significant problem whose influence is unknown. Few studies report efforts to document the extent of this bias, although the NSRE has done so. Additionally, recall deficiencies can introduce error into estimates of recreation participation, particularly when the timeframe under question is a full year. This is more likely to affect data on activity occasions or frequency of use than estimates of the number of people who participated at least once.

Discrepancies Among Sources

We found many large differences in the estimates of activity participation among the SCORP studies, market survey data, and the NSRE. Some of this is likely accounted for by differences in the wording of questions or the segment of the population described, but some of the differences are so great that there must be other explanations. Additionally, trend data for some activities display quite a bit of sources of variation because participation is affected by many factors. Because of the substantial disparity in estimates of absolute participation, we recommend that readers compare the trends depicted in the various sources rather than place too much weight on the precise number of participants estimated by one source for any given time. Often, though not always, multiple sources depict similar trends.

Uncertainty in Projecting Trends

Few sources we reviewed made concrete projections about the magnitude of anticipated changes for outdoor recreation activities. Given the many influences on recreation demand, this is understandable, albeit unfortunate. Few sources made even directional projections, irrespective of magnitude. It is apparently risky to make such projections because future recreation participation will depend on many supply and demand factors, including unpredictable events such as wildfires, heavy snowfall, or road closures; economic conditions such as the price of gasoline; and social changes, such as the emergence of new activities. Therefore, planning must be adaptable, and resource managers must stay attuned to the myriad forces affecting recreation.

Literature on forecasting suggests that, in the short term, the best guide for planning may be the prior year's numbers, and sophisticated statistical models may not be superior (Burger et al. 2001, Witt and Witt 1995). Studies have shown that the performance of such models depends on the setting and the activity, so it is difficult to endorse them unilaterally. Moreover, such techniques require substantial amounts of accurate data on past trends and sociodemographic correlates of participation, and such data are typically not available to forest planners for recreation (Burger et al. 2001, Chen et al. 2003).

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The best recommendation may be to monitor recreation activity closely, and carefully consider each activity independently of the others. In some cases, a Delphi study may be useful. A Delphi study involves rounds of analysis and commentary by selected experts, who review each others' conclusions and work together to reach a unified overall position. In at least some cases, such techniques have proven quite adequate and accurate (Witt and Witt 1995). A technique like this, which forces careful consideration of different sources of information and different factors affecting demand, may help sort out contradictory information.

Another issue is the amount of variation that can occur at the local scale. In Three Sisters Wilderness, for example, use of certain trails near Bend, Oregon, has nearly doubled over the past 10 to 15 years, and regional trends show that day use is generally increasing in wilderness. Other trails only a few miles away, however, have experienced no change in use. In this case, the difference is probably accounted for by the type of area accessed by the trails–the increasingly popular trails are well publicized and provide access to scenic subalpine areas. The trails that have not seen an increase in use typically provide access to heavily forested environments. The point is that it would be incorrect to assume that wilderness use has been and will continue increasing uniformly even within a narrow geographical area. Without accurate data, this local variation in use would not have been evident.

This example highlights the importance of monitoring individual forests for local trends.

Likely Regionwide Trends

Having delineated a number of caveats regarding projections, we draw some conclusion, based on the literature, about likely trends in recreation for Oregon, Washington, and Alaska over the next 10 years. Some expected trends are common to all three states, others are not.

- The population in the three states is increasing, which means demand for recreation will also increase, all other things being equal. Many newcomers to the Pacific Northwest have relatively high levels of education and income and come for the natural amenities, including outdoor recreation opportunities.
- Although the states' populations are aging overall, growth is occurring in all age groups, and younger people exhibit a strong interest in diverse, active, and new activities. The rapid popularity of snowboarding is an example of this. Thus, it is important to keep all age groups in mind when planning for future recreation.
- The popularity of recreation sites with water resources is expected to grow.
- Population growth will be one driver of increasing use, but word-of-mouth recommendations and media exposure are expected to play even larger roles (Cordell and Super 2000, Witt and Witt 1995). Popular day-use areas will likely see increased crowding and conflict. Many sources anticipate increased conflict between motorized and nonmotorized uses of public lands.
- The SCORP documents from all three states highlight some similar issues pertaining to outdoor recreation that may be useful to national forest managers. Further crowding at popular sites and growing conflict among different uses were identified as pressing problems by state residents. Citizens in all three states also identified facility condition and maintenance as significant concerns, often more important than the provision of new facilities. Finally, all survey participants in all three states agree that there is a growing need for an updated, well-located system of trails.

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Likely State Variation in Trends

Each state has different population characteristics that will affect how trends will play out at more local scales. For example:

- Population growth trends will differ across the region. In Oregon and

Washington, primary growth counties are near Portland, Seattle, and Tacoma, but large increases are also expected in Deschutes County (Oregon) and coastal counties in Washington. National forests in these areas (e.g., Mount Baker-Snoqualmie, Gifford Pinchot, Olympic, Mount Hood, Siuslaw, Willamette, and Deschutes) can expect to see overall increases in recreation, especially for day-use activities. On the other hand, changes are likely to be slower in forests more than 100 to 200 miles from population centers, where local populations are expected to be relatively stable. Cordell and Super (2000) predict increased demand for activities that involve learning, viewing, social gathering, and swimming, especially near cities.

Alaskans are migrating to urban areas such as Anchorage and Fairbanks (Tomlinson 2005). Economic opportunity is one reason; climate change in the northern region that has disrupted traditional subsistence lifestyles is another. More than half the population lives in Anchorage and the nearby Matanuska-Susitna Borough (Williams 2004). Over the next decade, this area is expected to become home for even more Alaskans (Williams 2004). The Chugach National Forest, Prince William Sound and Denali National Park, among others, are recreational areas for this region. In southeast Alaska, home to the Tongass National Forest and Glacier Bay National Park, Juneau, Sitka, and Ketchikan expect moderate population increases, but not much growth is projected for other communities in the region.

- Despite growing numbers of Hispanics in all three states and Asian-Americans in Washington and Alaska, the population will remain primarily White over the next 10 years. Thus, few large-scale changes in types of activities or facilities will be needed owing to ethnic diversification. However, the large number of Hispanic residents and expected growth in specific regions imply a lower expected demand for some activities (e.g., developed and primitive camping or OHV use) and higher demand for other activities (such as hiking and picnicking). Additionally, Hispanics tend to use facilities in different ways, most notably in larger groups for longer periods of time, with a focus on family-oriented activities. This may require some adjustment in the types and arrangement of facilities provided. The regions most likely to see increased growth in Hispanics are the counties in the central parts of Oregon and Washington states and the eastern part of Oregon. In Alaska, the Hispanic, African-American, and Asian populations are heavily concentrated in Anchorage and the Matanuska-Susitna Borough with a higher percentage of Filipinos in southeast Alaska (Williams 2001).

- The variability in education, income, and, in some cases, age across counties within each state implies a need for forest planners to tailor their analyses to their specific circumstances. Visiting historic sites, winter sports, biking, and motor boating show the greatest variability with income and, therefore, may be most in need of region-specific analysis.
- Forests in areas where the population is aging and not generally increasing are unlikely to see the types of rapid increases in demand for many activities that will be experienced by forests surrounding Seattle, Tacoma, and Portland. However, older Americans appear to sustain interest in walking and wildlife viewing, so these activities may remain universally important. In southeast Alaska, even though the resident population is aging, the number of tourists to the area will likely keep recreation demand high for several activities.
- In Oregon, the northeast region of the state will probably see the least change. It has the slowest population growth, high levels of unemployment, and low incomes. It is also distant from any significant population centers. The central part of the state, particularly near the Cascade Range, will likely see significant growth in recreation demand. Additionally, the large Hispanic population there may create a need for different types of activities or facilities. Along the coast, the population tends to be older and to be growing at more moderate rates. These trends suggest a less rapid increase in recreation demand. Coastal counties are important tourist destinations, however, so visitors may drive demand.
- In Washington, the central and eastern parts of the state tend to have an older population, high percentages of Hispanics, low income, and moderate population growth. These factors suggest that recreation demand will not rise rapidly, except at magnet destinations that attract visitors from outside the region. Along the coast, as in Oregon, the population tends to be older and aging, and moderate population growth is expected. These factors suggest trends in recreation demand similar to those for Oregon's coastal communities. Finally, in the Puget Sound and Seattle area, large increases in population are expected, and education rates are exceptionally high. This suggests that there will be significant and increasing recreational pressure on the forests that serve the metropolitan population.
- The south-central and southeast regions of Alaska are the most heavily populated and receive the heaviest recreation use from both residents and visitors. The Kenai Peninsula, Prince William Sound, and Chugach National Forest are close enough to the Anchorage/Matanuska-Susitna Region to

be day-trip destinations for more than 50 percent of Alaska's population. The cruise industry heavily markets shore excursions to their passengers. Demand for on-shore activities that can be enjoyed in a few hours is likely to increase near the ports of call along the Gulf Coast and Inside Passage cruise routes.

- Based on national trend studies (NSRE, OIF, Roper, SGMA) the following conclusions about specific activities seem to be generally supported:
  - Expected increases: swimming, personal watercraft use, kayaking, wildlife viewing, and OHV riding.
  - Stable: canoeing, biking, mountain biking, primitive camping, RV camping, motor boating, hunting, hiking, and rock climbing.
  - Declining use: downhill skiing, horseback riding, rafting, and water-skiing.
- For Oregon, Washington, and Alaska, local indications support these conclusions regarding many activities with the following exceptions:
  - Snowmobiling in Oregon and Washington still seems to be on the increase, whereas it has stabilized in other parts of the country. Perhaps the rate of growth will decline in the next few years.
  - In Washington and Alaska, winter sports are projected to increase, whereas they have declined elsewhere. Participation appears stable in Oregon. Alaska SCORP data show increases in all winter sports over recent years.
  - In both Oregon and Washington, RV use still appears to be increasing, whereas tent camping, primitive camping, and backpacking appear to be stable or declining. Camping of all forms appears to be increasing in Alaska.
  - Sightseeing/driving for pleasure appears to be stable or declining in all three states, unlike other parts of the country.
  - Fishing appears to be declining in Oregon and Washington but increasing in Alaska.
  - Motor boating appears to be stable or declining in Oregon and Washington, but not in Alaska.
  - Tourism, particularly cruise ship and air arrivals, has increased dramatically in Alaska and is likely to continue to increase.
  - River recreation, backpacking, and camping have increased substantially in Alaska, contrary to national trends.

These trends show that in Oregon, Washington, and Alaska, participation in activities that occur on public lands is projected to increase, in most cases.

These trends show that in Oregon, Washington, and Alaska, participation in activities that occur on public lands is projected to increase, in most cases. In some

cases this will be due to the increasing popularity of a specific activity; in others it will be a simple function of the expected population growth. Because much of the population growth is expected to occur in proximity to public lands, and to be composed of those with an interest in outdoor recreation and the resources to recreate, demand for recreation on public land may be even higher than one would suspect. Despite this general conclusion, planners and managers need to remain alert to anticipated changes in the ethnic composition of the states' populations, as well as local factors (such as road closures for habitat protection or changes in fishing regulations) and more subtle trends, such as increasing income disparity, that may not be evident from census data, but which may have important implications for the equitable provision of recreation opportunities.

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Metric Equivalents

When you know:	Multiply by:	To find:
Miles (mi)	1.609	Kilometers
Acres (ac)	.405	Hectares

References

Alaska Department of Natural Resources. 2004. Alaska's outdoor legacy: statewide comprehensive outdoor recreation plan. State of Alaska, Alaska Department of Natural Resources, Division of Outdoor Parks and Recreation. http://www.dnr.state.ak.us/parks/plans/scorp/2004scorpweb.pdf. (October 8).

Bowker, J.M. 2001. Outdoor recreation by Alaskans: projections for 2000 through 2020. Gen. Tech. Rep. PNW-GTR-527. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 22 p.

Bowker, J.M.; English, D.B.K.; Cordell, H.K. 1999. Projections of outdoor recreation participation to 2050. In: Cordell, H.K.; Betz, C.; Bowker, J.M., eds. Outdoor recreation in American life: a national assessment of demand and supply trends. Champaign, IL: Sagamore Publishing: 323-350.

Brooks, D.J.; Haynes, R.W. 2001. Recreation and tourism in south-central Alaska: synthesis of recent trends and prospects. Gen. Tech. Rep. PNW-GTR-511. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 19 p.

Burchfield, J.; Miller, T.; Anderson, K. 2000. Recreation in the Pacific Northwest: challenges and opportunities. Missoula, MT: Bolle Center. 83 p.

Burger, C.J.S.C.; Dohnal, M.; Kathrada, M.; Law, R. 2001. A practitioners' guide to time-series methods for tourism demand forecasting—a case study of Durban, South Africa. Tourism Management. 22: 403-409.

Chen, R.J.C.; Bloomfield, P.; Fu, J.S. 2003. An evaluation of alternative forecasting methods to recreation visitation. Journal of Leisure Research. 35(4): 441-454.

Cole, D.N. 1996. Wilderness recreation use trends, 1965 through 1994. Res. Pap. INT-RP-488. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 11 p.

Cole, D.N.; Hall, T.E. 2005. Wilderness visitors and experiences in Oregon and Washington: trailhead surveys in thirteen Forest Service wildernesses. 237 p. Unpublished report. On file with: Troy Hall, Department of Conservation Social Sciences, University of Idaho, P.O. Box 441139, Moscow, ID 83844.

Colt, S.; Martin, S.; Mieren, J.; Tomeo, M. 2002. Recreation and tourism in south-central Alaska: patterns and prospects. Gen. Tech. Rep. PNW-GTR-551. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 78 p.

Cordell, H.K.; Betz, C.; Bowker, J.M.; English, D.B.K.; Mou, S.H.; Bergstrom, J.C.; Teasley, R.J.; Tarrant, M.A.; Loomis, J. 1999. Outdoor recreation in American life: a national assessment of demand and supply trends. Champaign, IL: Sagamore Publishing. 449 p.

Cordell, H.K.; Betz, C.J.; Green, G.T.; Mou, S.; Leeworthy, V.R.; Wiley, P.C.; Barry, J.J.; Hellerstein, D. 2004. Outdoor recreation for 21st century America. A report to the Nation: the national survey on recreation and the environment. State College, PA: Venture Publishing. 293 p.

Cordell, H.K.; Super, G.R. 2000. Trends in Americans' outdoor recreation. In: Gartner, W.C.; Lime, D.W., eds. Trends in outdoor recreation, leisure and tourism. New York: CABI Publishing: 133-144.

Crone, L.; Reed, P.; Schaefers, J. 2002. Social and economic assessment of the Chugach National Forest area. Gen. Tech. Rep. PNW-GTR-561. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 108 p.

Dahl, K. 2004. The value of recreation and tourism to the state of Oregon: a report for the Tillamook Rainforest Coalition. Unpublished report. http://www.tillamookrainforest.org/TRC/media/asset_upload_file22_1419.pdf. (August 15, 2005).

Dean Runyan Associates. 2004a. Oregon travel data. http://www.deanrunyan.com/impactsOR.html. (March 2006).

Dean Runyan Associates. 2004b. Oregon travel impacts 1991-2003: statewide preliminary estimates, detailed county estimates. http://www.deanrunyan.com/pdf/or03p.pdf. (March 2006).

Driver, B.L.; Brown, P.J.; Gregoire, T.G.; Stankey, G.H. 1987. The ROS planning system: evolution, basic concepts, and research needed. Leisure Sciences. 9(3): 203-214.

Duffy-Deno, K.T. 1998. The effect of federal wilderness on county growth in the intermountain Western United States. Journal of Regional Science. 38(1): 109-136.

English, D.B.K.; Marcouiller, D.W.; Cordell, H.K. 2000. Tourism dependence in rural America: estimates and effects. Society and Natural Resources. 13: 185-202.

FedStats. 2008. MapStats: United States [Database]. http://www.fedstats.gov/qf/. (19 June).

Frentz, I.C.; Farmer, F.L.; Guldin, J.M.; Smith, K.G. 2004. Public lands and population growth. Society and Natural Resources. 17: 57-68.

Hall, T.E.; Cole, D.N. 2000. An expanded perspective on displacement: a longitudinal study of visitors to two wildernesses in the Cascade Mountains of Oregon. In: McCool, S.F.; Cole, D.N.; Borrie, W.T.; O'Loughlin, J., eds. Wilderness science in a time of change conference. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 113-121. Vol. 4.

Hutchison, R. 1987. Ethnicity and urban recreation: Whites, Blacks, and Hispanics in Chicago's public parks. Journal of Leisure Research. 19: 205-222.

Interagency Committee for Outdoor Recreation [IAC]. 2002. An assessment of outdoor recreation in Washington State: a State Comprehensive Outdoor Recreation Planning (SCORP) document 2002-2007. Olympia, WA: State of Washington.

Interagency Committee for Outdoor Recreation [IAC]. 2003. Estimates of future participation in outdoor recreation in Washington State. Olympia, WA: State of Washington. http://www.iac.wa.gov/Documents/IAC/Recreation_Trends/Est_Future_Participation_Outdoor_Rec_3-03.pdf. (October 8, 2004).

James, G.A.; Schreuder, H.T. 1972. Estimating dispersed recreation use along trails and in general undeveloped areas with electric-eye counters: some preliminary findings. Res. Note SE-181. Asheville, NC: U.S. Department of Agriculture, Forest Service. 8 p.

Johnson, C.Y.; Bowker, J.M. 1999. On-site wildland activity choices among African Americans and White Americans in the rural South: implications for management. Journal of Park and Recreation Administration. 17(1): 21-39.

Johnson, C.Y.; Bowker, J.M.; English, D.B.K. 1998. Wildland recreation on the rural South: an examination of marginality and ethnicity theory. Journal of Leisure Research. 30(1): 101-120.

Johnson, C.Y.; Horan, P.M.; Pepper, W. 1997. Race, rural residence, and wildland visitation: examining the influence of sociocultural meaning. Rural Sociology. 62(1): 89-110.

Johnson, K.M.; Beale, C.L. 2002. Nonmetro recreation counties: their identification and rapid growth. Rural America. 17(4): 12-19.

Kakoyannis, C.; Stankey, G.H. 2002. Assessing and evaluating recreational uses of water resources: implications for an integrated management framework. Gen. Tech. Rep. PNW-GTR-536. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 59 p.

Kelly, J.R.; Freysinger, V.J. 1999. 21st century leisure: current issues. Boston, MA: Benjamin-Cummings Publishing Company. 390 p.

Kelly, J.R.; Warnick, R.B. 1999. Recreation trends and markets. Champaign, IL: Sagamore. 199 p.

Lucas, R.C.; Kovalicky, T.J. 1981. Self-issued wilderness permits as a use measurement system. Res. Pap. INT-270. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 18 p.

Lucas, R.C.; Schreuder, H.T.; James, G.A. 1971. Wilderness use estimation: a pilot test of sampling procedures on the Mission Mountains Primitive Area. Res. Pap. INT-109. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 44 p.

McCool, S.F.; Cole, D.N. 2001. Thinking and acting regionally: toward better decisions about appropriate conditions, standards, and restrictions on recreation use. The George Wright Forum. 18(3): 85-98.

McCool, S.F.; Kruger, L. 2003. Human migration and natural resources: implications for land managers and challenges for researchers. Gen. Tech. Rep. PNW-GTR-580. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 19 p.

National Environmental Policy Act of 1969 [NEPA]; 42 U.S.C. 4321 et seq.

National Forest Management Act of 1976 [NFMA]; Act of October 22, 1976; 16 U.S.C. 1600.

National Sporting Goods Association [NSGA]. 2005. Ten-year history of selected sports participation. http://www.nsga.org/public/pages/index.cfm?pageid=153. (August 10, 2005).

Northern Economics, Inc. [NEI]. 2004. Alaska visitor arrivals summer 2004. http://www.dced.state.ak.us/oed/toubus/pub/Summer_arrivals2004.pdf. (February 16, 2006).

National Survey on Recreation and the Environment [NSRE]. 1994-95. Technical appendices. http://www2.srs.fs.fed.us/stats/2000/recreation/executive.htm and http://www.srs.fs.usda.gov/trends/techappend.htm. (August 2005).

Oregon Department of Fish and Wildlife. 2004. License and tag sales three worksheets. http://www.dfw.state.or.us/ODFWhtml/economic_information/salesbycalendar_1985-2003.pdf. (October 2004).

Oregon Parks and Recreation Department. 2003. 2003-2007 Oregon statewide comprehensive outdoor recreation plan. Salem, OR. http://www.prd.state.or.us/images/pdf/scorp_00_complete.pdf. (May 10, 2004).

Oregon State Marine Board [OSMB]. 2002. Boating in Oregon: triennial survey results, 2002. Salem, OR. http://www.marinebd.osmb.state.or.us/Library/TriSurvey01/. (May 10, 2004).

Oregon Tourism Commission [OTC]. 2003. Travel news. http://otc.traveloregon.com/factsfigs/0303_TravelNews.pdf. (May 10, 2004).

Outdoor Industry Foundation [OIF]. 2005. Outdoor recreation participation study for the United States. Seventh edition for year 2004. Trend analysis. Boulder, CO: The Leisure Trends Group. http://www.outdoorindustry.org/pdf/2005_Participation_Study.pdf. (August 10, 2005).

Petersen, M.E. 1985. Improving voluntary registration through location and design of trail registration stations. Res. Pap. INT-336. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 8 p.

Rasker, R.; Alexander, B.; van den Noort, J.; Carter, R. 2004. Public lands conservation and economic well-being. Tucson, AZ: Sonoran Institute. [Pages unknown].

RoperASW. 2004. Outdoor recreation in America 2003: recreation's benefits to society challenged by trends. Report prepared for The Recreation Roundtable. Washington, DC: http://www.funoutdoors.com/files/ROPER%20REPORT%202004_0.pdf. (August 10, 2005).

Roper Starch. 2000. Outdoor recreation in America 2000: addressing key societal concerns. Report prepared for The Recreation Roundtable. Washington, DC: http://www.funoutdoors.com/files/2000%20Executive%20Report.pdf. (August 10, 2005).

Rudzitis, G.; Johansen, H.E. 1989. Migration into wilderness counties in the West: causes and consequences. Western Wildlands. 15: 19-23.

Schroeder, R.; Cerveny, L.; Robertson, G. 2005. Tourism growth in southeast Alaska: trends, projections, and issues. In: Mazza, R.; Kruger, L.E., tech. eds. Social conditions and trends in southeast Alaska. PNW-GTR-653. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 45-91.

Shelby, B.; Tokarczyk, J. 2002. Oregon shore recreational use study. Report prepared for the Oregon State Parks and Recreation Department. Corvallis, OR: Oregon State University, Department of Forest Resources.

Sporting Goods Manufacturers Association [SGMA]. 2004. Sports participation in America: 2004 edition. http://www.sgma.com/associations/5119/files/p27-02-04-m.pdf. (August 10, 2005).

Sporting Goods Manufacturers Association [SGMA]. 2005. Sports participation topline report 2005 Edition. Statistical highlights from the Superstudy ® of Sports Participation. http://www.sgma.com/reports/data/2005/p28b-05.pdf. (August 10, 2005).

Stankey, G.H.; Clark, R.N.; Bormann, B.J. 2001. Adaptive management of natural resources: theory, concepts, and management institutions. Gen. Tech. Rep. PNW-GTR-654. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 73 p.

Stankey, G.H.; Cole, D.N.; Lucas, R.C.; Petersen, M.E.; Frissell, S.S. 1985. The limits of acceptable change (LAC) system for wilderness planning. Gen. Tech. Rep. INT-176. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 39 p.

Strategic Research Group. 2003. 2002 National Recreational Boating Survey Report. Report prepared for the U.S. Coast Guard, Office of Boating Safety. www.uscgboating.org/statistics/USCG_NRBS%202002-Report.pdf. (March 2006).

Taylor, D.E. 2000. Meeting the challenge of wild land recreation management: demographic shifts and social inequality. Journal of Leisure Research. 32(1): 171-179.

Tomlinson, N. 2005. Internal migration and income. Alaska Economic Trends. May: 20-22.

U.S. Department of Agriculture, Forest Service [USDA FS]. 1982. ROS users guide. FSM 2311. Recreation, heritage, and wilderness resources. Washington, DC. 38 p.

U.S. Department of Agriculture, Forest Service [USDA FS]. 2000. USDA Forest Service Strategic Plan 2000 revision. Washington, DC.

U.S. Department of Agriculture, Forest Service [USDA FS]. 2002. National forest visitor use monitoring national and regional project results. http://www.fs.fed.us/recreation/programs/nvum/reports/year2/2002_national_report_final.htm. (October 8, 2004).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2004a. Update Report No. 1: Participation rates for outdoor activities in 2004. Recreation Statistics Update. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2004b. Update Report No. 3: Trends and demographics of off-road vehicle users. Recreation Statistics Update. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2004c. Update Report No. 4: Hispanic participation in land-based outdoor recreation activities. Recreation Statistics Update. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2004d. Update Report No. 5: Hispanic participation in viewing-learning outdoor recreation activities. Recreation Statistics Update. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2005a. Update Report No. 6: American Indian and Alaskan Native participation in land-based outdoor recreation activities. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2005b. Update Report No. 7: Participation in outdoor recreation activities: Asian American, Native Hawaiian, and other Pacific Islanders. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2005c. Update Report No. 10: Retirees participation in outdoor recreation activities: retirees 65 and older remain active in many activities well into their senior years. Southern Research Station. http://www.srs.fs.usda.gov/trends/recupdates.html. (August 10, 2005).

U.S. Department of Agriculture, Forest Service [USDA FS]. 2006. National survey on recreation and the environment. Southern Research Station. http://www.srs.fs.usda.gov/trends/nsre/nsre2.html. (June 7, 2006).

U.S. Department of Commerce, Bureau of the Census [U.S. Census Bureau]. 2004. Educational attainment in the United States: 2003. http://www.census.gov/prod/2004pubs/p20-550.pdf. (October 2004).

U.S. Department of Commerce, Bureau of the Census [U.S. Census Bureau]. 2005. Population division, interim state population projections, 2005. Tables 3 and 4. http://www.census.gov/population/www/projections/projectionsagesex.html. (February 16, 2006).

U.S. Department of Commerce, Bureau of the Census [U.S. Census Bureau]. 2008. State and county QuickFacts [Database]. http://quickfacts.census.gov/qfd/. (19 June).

U.S. Department of the Interior, Fish and Wildlife Service [USDI FWS]; U.S. Department of Commerce, U.S. Census Bureau [U.S. Census Bureau]. 2002. 2001 national survey of fishing, hunting, and wildlife-associated recreation. http://www.census.gov/prod/2003pubs/fhw01-us.pdf. (October 8, 2004).

Washington Department of Fish and Wildlife. 2006. Washington state hunting and fishing license sales. www.wdfw.wa.gov. (April 2006).

Washington Office of Financial Management. 2006a. Washington recreational vehicle registrations. http://www.ofm.wa.gov/. (April 2006).

Washington Office of Financial Management. 2006b. Washington state park visitation figures. http://www.ofm.wa.gov/databook/environment/vt02.htm. (March 2006).

Wilde, G.R.; Ditton, R.B.; Grimes, S.R.; Riechers, R.K. 1996. Status of human dimensions surveys sponsored by state and provincial fisheries management agencies in North America. Fisheries. 21: 12-17.

Williams, G. 1998. A probe into the future: population projections. Alaska Economic Trends. 18(9): 3-12.

Williams, G. 2001. Race and ethnicity in Alaska. Alaska Economic Trends. 21(10): 11-21.

Williams, G. 2004. Migration. Alaska Economic Trends. 24(7): 3-12.

Witt, S.F.; Witt, C.A. 1995. Forecasting tourism demand: a review of empirical research. International Journal of Forecasting. 11: 447-475.

Appendix—Sources of Information on Trends

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
Local	Future	Review paper that explores interactions between people in rural areas of the Pacific Northwest and natural resources, including drivers of population growth, resource management consequences of growth, possible changes in social and psychological links between people and natural resources, and the best way to measure and assess consequences of population growth. Examples from Kittitas County, Washington, are used to llustrate the discussion.	McCool, S.F.; Kruger, L. 2003. Human migration and natural resources: implications for land managers and challenges for researchers.
Regional	Current	Oregon's 5-year plan for outdoor recreation. Includes a statewide telephone survey conducted in 2001 with 4,400 Oregonians (400 from each of 11 planning regions) about their participation in 13 categories of recreation. It also includes a more indepth mail survey of 2,238 residents (59 percent response rate), who responded about participation in 76 activities. These data generated estimates of total "recreaing households" statewide. Presents inventory of supply of public and private recreation opportunities for each planning region and contrasts these to current and projected (2007) demand.	Oregon Parks and Recreation Department. 2003. 2003-2007 Oregon Statewide Comprehensive Outdoor Recreation Plan. www.prd.state.or.us/scorp_ review.php.
Regional	Current	Washington state's Statewide Comprehensive Outdoor Recreation Plan (SCORP). Includes findings from a statewide survey of 1,500 residents regarding participation in 15 categories of activities. Respondents completed surveys every 2 months for a year (response rate estimated 40 to 50 percent). Results are presented as the percentage of all state residents participating in each activity, and participation is also broken out by six age groups.	Interagency Committee for Outdoor Recreation. 2002. Washington Statewide Comprehensive Outdoor Recreation Plan. http://www.iac.wa.gov/.

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
Regional	Future	Washington state estimates of likely trends in participation for outdoor recreation. Estimates are based on 1994-95 National Survey of Recreation and the Environment (NSRE) projections, adjusted for past trends statewide, local concerns, and anticipated supply.	Interagency Committee for Outdoor Recreation. 2003. Estimates of future participation in outdoor recreation in Washington state. http://www.iac.wa.gov/.
Regional	Current, past	Alaska's SCORP. Provides analysis of issues, trends, and needs for facilities on all public lands in the state, based on telephone surveys, mail surveys, and public workshops conducted in 2001. Primary public opinion and participation data are from telephone surveys with 600 Alaskans age 18 years and older. Data are provided about attitudes toward recreation management on public lands (focus on funding and management priorities) and participation in 38 activities.	Alaska Department of Natural Resources. 2004. Alaska's outdoor legacy: Statewide Comprehensive Outdoor Recreation Plan. Division of Outdoor Parks and Recreation.
Local, Alaska	Current	Describes social and economic conditions (especially employment and income) and trends in the vicinity of the Chugach National Forest. Identifies tourism/recreation as the industry most affected by forest management. Includes results of mail surveys of 14 local communities, including views on forest management.	Crone, L. et al. 2002. Social and economic assessment of the Chugach National Forest area. PNW-GTR-561.
Oregon	Current	Survey of registered boat owners to identify trends on waterways throughout Oregon. Conducted every 3 years. Provides estimates of boating use at each of 251 major water bodies in the state. Presents boaters' opinions about	Oregon State Marine Board. 2002. Boating in Oregon: Triennial Boating Survey.

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
		safety, law enforcement, and facilities. Describes how, when, and where boats are used.	
National, regional	Past, future	Review of other studies and discussions of water-based recreation. Argues that we lack reliable, valid information on trends, but concludes that use is increasing. Syntheizes literature on recreational use of water resources: describes trends (generally through the late 1990s) in recreation and likely effects of population increases and demographic change. In a national view, reviews population change and projections, migration patterns, changing environmental concern among Americans, and ethnic differences in participation. Regionally, looks specifically at Oregon, Washington, and Alaska's recent activity trends (prior to 2000). Discusses likely issues in the future, including increased conflict over water resources; changing technology (which creates uncertainty about trends); and changing leisure time among Americans.	Kakoyannis, C.; Stankey, G.H. 2002. Assessing and evaluating recreational uses of water resources: implications for an integrated management framework.
National, wilderness	Past	Assessment of national wilderness recreation use trends from 1965 to 1994. Concludes that recreational use of wilderness has increased, especially since 1990s. Growth has been especially high in national parks.	Cole, D.N. 1996. Wilderness recreation use trends, 1965 through 1994. INT-RP-488.
National	Past, current	Describes findings from the 1994-95 NSRE. Includes chapters on supply of outdoor recreation, participation rates by different sociodemographic groups and in different regions, and comparison with past NSRE studies.	Cordell, H.K. et al. 1999. Outdoor recreation in American life: a national assessment of demand and supply trends.

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
National	Past, current	Describes findings from 1999-2001 NSRE studies Recreation participation for almost 80 activities are broken down by sociodemographic factors (race, age, gender, income, education), as well as by state.	Cordell, H.K. et al. 2004. Outdoor recreation for 21st century America. A report to the Nation: the national survey on recreation and the environment.
National	Past, current	Outdoor recreation participation studies for 22 human-powered activities. Information has been tracked since 1998 by using telephone surveys with 2,000 to 4,000 Americans age 16 years and older. Participation rates are broken out by age, gender, and ethnicity.	Outdoor Industry Foundation. 2005. Outdoor recreation participation study for the United States. Seventh edition for year 2004. Trend analysis.
National	Past	Uses market research studies over past decades (1976 to 1996) to display trends for more than 60 activities among Americans age 18 years and older. Data are displayed graphically, and where available, trends are presented by age. Qualitative projections are made, taking into account past trends and likely future sociodemographic factors. Introductory chapters provide good overview of concerns surrounding projections. One of the only published sources of market data, and therefore an important complement to NSRE data.	Kelly, J.R.; Warnick, R. 1999. Recreation trends and markets.

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
National	Past	Reviews issues in leisure studies. Discussion of complexities of recreation from contested opportunities and interests related to gender, class, race, and ethnicity, to political and economic issues related to resource allocation, environmental conflict, new work roles, and differential access to power. Useful for understanding factors that influence trends.	Kelly, J.R.; Freysinger, V.J. 1999. 21st century leisure: current issues.
National	Current, past	This survey is the ninth annual survey of a representative sample (~2,000 per year) of Americans. Like other reports, this presents overall participation rates by sociodemographic categories and frequency of participation in nearly 40 activities. The 2004 survey focused on people's views about recreation and their relationship to the environment, their interest in and actual volunteerism on public lands, and attitudes toward recreation fees at federal sites.	RoperASW. 2004. Outdoor recreation in America 2003: Recreation's benefits to society challenged by trends.
National	Past, current	Participation rates by Americans age 6 years and older, based on mail surveys of 24,000 households each year (62 percent response rate). Participation data provided for 1987, 1993, 1998, 2001, 2002, and 2003.	Sporting Goods Manufacturers Association. 2005. Sports Participation Topline Report 2005 Edition. Statistical Highlights from the Superstudy® of Sports Participation.

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
National	Current	Provides basic demographic data about the United States. Data on age, gender, household income, family make-up, education, employment, and other factors are available for states and every county in the country. Many reports are also available for download.	U.S. Department of Commerce, Bureau of the Census. http://www.census.gov.
Oregon	Current	Profiles demographic characteristics of Oregon relative to the United States; provides details for counties and cities across the state.	FedStats. 2008. Oregon MapStats. http://www.fedstats.gov/qf/states/41000.html
Washington	Current	Profiles demographic characteristics of Washington relative to the United States; provides details for counties and cities across the state.	FedStats. 2008. Washington MapStats. http://www.fedstats.gov/qf/states/53000.html
Alaska	Current	Profiles demographic characteristics of Alaska relative to the United States; provides details for counties and cities across the state.	FedStats. 2008. Alaska MapStats. http://www.fedstats.gov/qf/states/02000.html
Oregon	Current	Quick access to Oregon census facts about people, their business, and geography.	U.S. Census Bureau. 2008. Oregon QuickFacts. http://quickfacts.census.gov/Qfd/states/41000.html
Washington	Current	Quick access to Washington census facts about people their business, and geography.	U.S. Census Bureau. 2008. Washington QuickFacts. http://quickfacts.census.gov/Qfd/states/53000.html
Alaska	Current	Quick access to Alaska census facts about people, their business, and geography.	U.S. Census Bureau. 2008. Alaska QuickFacts. http://quickfacts.census.gov/Qfd/states/02000.html

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
Region	Past, current, future	Synthesis of secondary data. Presents regional (Oregon, Washington) population trends (census), travel and tourism characteristics, and state commissioned study (American Travel Survey). Presents some activity data from the 1994-95 NSRE. Previously unpublished data are presented from a Pacific Northwest marketing survey on public demand for facilities and services.	Burchfield, J.; Miller, T.; Anderson, K. 2000. Recreation in the Pacific Northwest: challenges and opportunities: current regional conditions and potential desired futures. Missoula, MT: Bolle Center for People and Forests.
Region	Current	Observations of recreational activities of more than 30,000 groups of coastal visitors, broken down by northern, central, and southern coastlines. Onsite surveys with more than 6,400 visitors and mail surveys of >3,300 people focused on conflict and crowding beach access, motorized beach use, lodging and distance traveled, safety, and snowy plover conservation.	Shelby, B.; Tokarczyk, J. 2002. Oregon shore recreational use study.
Alaska	Past, current, future	• Population trends since 1945. • Population projections through 2025, by age and gender.	Williams, G. 1998. A probe into the future: population projections.
Region	Past, current	• Summarizes secondary data on demographic, recreation, and travel trends, specifically in Oregon SCORP regions 1 and 2 (Tillamook and Clatsop Counties). • Includes economic impact of activities–hunting, fishing, off-highway vehicle use, and other trail uses.	Dahl, K. 2004. The value of recreation and tourism to the state of Oregon. A report for the Tillamook Rainforest Coalition. http://www.tillamookrainforest.org/TRC/media/asset_upload_file22_1419.pdf

Sources of information on trends (continued)

Perspective			
Geographic	**Temporal**	**Summary**	**Source**
Alaska	Future	• Uses state data, Fish and Wildlife Service studies, and NSRE from the late 1990s to project trends. • Looks at number of participants and number of trips.	Bowker, J. 2001. Outdoor recreation by Alaskans: projections through 2020. Gen. Tech. Rep. PNW-GTR-527.
Alaska	Current, future	Synthesizes and contextualizes findings from Colt et al. (2002) and Bowker (2001).	Brooks, D.J.; Haynes, R.W. 2001. Recreation and tourism in south-central Alaska: synthesis of recent trends and prospects. Gen. Tech. Rep. PNW-GTR-511.
Alaska	Current, future	• Examines current activities, past trends, and likely developments in recreation, with specific focus on the Chugach National Forest. • Results of interviews with more than 100 travelers.	Colt, S.; Martin, S.; Mieren, J.; Tomeo, M. 2002. Recreation and tourism in south-central Alaska: patterns and prospects. Gen. Tech. Rep. PNW-GTR-551.

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