


Visitors and Use Levels on the Lower Sandy Wild and Scenic River

Final Report

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EXECUTIVE SUMMARY

Objectives

The Lower Sandy Wild and Scenic River is approximately 12.5 miles long, extends from Dodge Park to Dabney State Recreation Area, and provides recreation opportunities to residents of the Pacific Northwest and beyond. To effectively protect and enhance this river's values, the Bureau of Land Management, in cooperation with the Oregon Parks and Recreation Department, completed a management plan for the lower section of this river in 1993. However, little data on visitor experiences and recreation use along this section of river have been collected since 1993. Objectives of this research project, therefore, were to: (a) provide an estimate of current use levels, and (b) survey both commercially guided and self-guided recreationists in the winter and summer to describe their current experiences and identify any potential concerns.

Methods

Data were obtained from questionnaires administered onsite (i.e., face-to-face) to recreationists visiting the Lower Sandy Wild and Scenic River in both winter (February to April, 2014) and summer (July to September, 2014). Questionnaires were administered on both weekdays and weekends at three sites that serve as the main put-in and take-out points: (a) Dodge Park, (b) Oxbow Regional Park, and (c) Dabney State Recreation Area. In total, 598 questionnaires were completed by recreationists with a high overall response rate of 86%. In the winter, 214 questionnaires were completed (83% response rate) and 384 questionnaires were completed in the summer (88% response rate), with 29% completed at Dodge Park (n = 173), 39% at Oxbow Regional Park (n = 231), and 32% at Dabney State Recreation Area (n = 194).

Results

Visit Characteristics

- **The most popular activities on this section of river across seasons were swimming (62%), fishing from the river bank (33%), and tubing / floating (30%)**. **The most popular winter activities were fishing from the river bank (71%) and from a boat (41%), whereas the most popular summer activities were swimming (89%) and tubing / floating (43%)**.
- **The most common main / primary activities across seasons were swimming (40%) and fishing from the river bank (20%). The most popular primary winter activities were fishing from the river bank (56%) and from a boat (23%), whereas swimming (61%) was by far the most popular primary summer activity**.
- **The largest proportions of respondents self-reported their skill level in their main / primary activity as intermediate (34%) or advanced (30%)**. In addition, 44% of respondents reported they were moderately specialized in their activity and 36% reported they were highly specialized. **The majority of winter recreationists reported they were highly specialized (51%), whereas the majority of those visiting in the summer reported they were moderately specialized (50%)**.
- **In total, 84% of respondents had visited this river before, whereas 16% had not visited previously. Winter respondents were slightly more likely (89%) than summer users (81%) to have visited before. Repeat visitation was extremely high** with users visiting an average of 85 times in the past. The highest proportions, however, had made 3-5 (20%) and 6-10 (20%) previous trips with the majority (52%) visiting 10 or fewer times. On average,

however, winter recreationists had visited many more times (*M* = 145 trips) than summer users (*M* = 45 trips).

- **Average group size was between 4 and 5 people**. Groups most commonly consisted of 3 or 4 people (29%), 2 people (21%), or 5 to 7 people (20%). **Summer visitors, on average, visited in larger groups (*M* = 5.58 people) than winter users (*M* = 2.68)**.
- **In total, 89% of respondents did not visit with a professional guide / outfitter, 8% did visit with a guide / outfitter, and 3% were guides on the river. Winter users were more likely to visit with a guide (18%) compared to summer users (3%). Boaters were more likely to visit with a guide**, as 40% of kayakers, 29% of those fishing from a boat, and 26% of rafters visited with a guide compared to fewer than 10% of participants in other activities visiting with a guide.
- **In total, 90% of respondents did not use a commercial shuttle service when they were visiting and only 10% used a shuttle. Winter users were more likely to use a shuttle service (24%) compared to summer users (2%). Respondents fishing from a boat were by far the most likely to use a commercial shuttle service (60%)** compared to participants in other activities (< 12%).
- **The most popular location to visit was Oxbow Regional Park (57%), followed by Dodge Park (42%) and Dabney State Recreation Area (29%)**. In addition, 23% visited the stretch of river between Oxbow Regional Park and Dabney State Recreation Area, and 16% visited the stretch between Dodge Park and Oxbow Regional Park. **Winter recreationists were more likely to visit each location, especially between Oxbow Regional Park and Dabney State Recreation Area, and between Dodge Park and Oxbow Regional Park**.
- **The locations where respondents spent the most time were Oxbow Regional Park (36%) and Dodge Park (27%). Winter users were more likely than summer visitors to spend more time on the stretches of river between Oxbow Regional Park and Dabney State Recreation Area (21% vs. 6%), and between Dodge Park and Oxbow Regional Park (20% vs. 2%), whereas summer users spent more time at Dodge Park (36% vs. 12%) and Dabney State Recreation Area (16% vs. 7%)**.
- **The most common put-in location was Oxbow Regional Park (37%) followed by Dodge Park (31%). Winter recreationists (43%) were more likely than summer users (34%) to put-in at Oxbow Regional Park, whereas summer users (13%) were more likely than winter users (2%) to put-in at Dabney State Recreation Area**. Approximately 20% of respondents reported they did not boat, raft, or float on the river.
- **The most common take-out location was Dabney State Recreation Area (28%) followed by Oxbow Regional Park (26%) and Dodge Park (20%). Winter users (43%) were more likely than summer users (20%) to take-out at Dabney State Recreation Area, whereas summer users (28%) were more likely than winter users (5%) to take-out at Dodge Park**.

Perceptions of Experiences and Conditions

- **Overall satisfaction was extremely high, as 91% of respondents were satisfied and few (4%) were dissatisfied. The highest proportion of users was "very satisfied" (49%)**. Summer visitors (55%) were more likely than winter users (38%) to be "very satisfied." These results, however, are not surprising because overall satisfaction is almost always uniformly high in recreation areas with most studies reporting that more than 80% of

recreationists are satisfied. **High overall satisfaction does not mean that respondents are satisfied with every aspect of their experience, there is nothing problematic with the setting or experience, and there is no reason to make improvements. Instead, it is important to examine other aspects of the recreation setting and experience (e.g., safety, crowding, conflict) to inform management**.

- **In total, 71% of respondents perceived no risk of personal harm at the river, 25% perceived slight risk, and 4% perceived moderate or extreme risk**. There were no differences between winter and summer. The most common risks were river current, high water, and rapids; rocks and trees in the river; inexperienced users and children; weather (e.g., hypothermia, sunstroke); and litter (e.g., glass, fish hooks).
- **Only 28% of respondents never saw other users drinking alcohol during their visits; 72% witnessed this occurring at least once with 25% seeing alcohol being consumed "once or twice," 26% "sometimes," and 21% "many times."** Winter visitors (31%) were more likely than summer users (26%) to never see others drinking alcohol at the river, whereas **summer users (25%) were more likely to see this happening "many times."** Despite these proportions of respondents seeing others drinking alcohol on their visits, there were no significant correlations between this observation and perceptions of safety and risk in both winter (r = .066, p = .352) and summer (r = .058, p = .273).
- Respondents encountered an average of 17 people *at the boat ramps* (i.e., put-in and take-out areas), but 38% encountered fewer than 5 people and the majority (55%) saw fewer than 10 people at the boat ramps. Average reported encounters at the boat ramps were higher in the summer (M = 24) than winter (M = 8). Respondents encountered an average of 27 people *on the river* with 25% encountering 10 to 19 people and 31% encountering 20 to 49 people. Average reported encounters on the river were higher in the summer (M = 37) than winter (M = 10). Reported encounters *on the river banks* averaged 29 people with 19% encountering 10 to 19 people and 27% encountering 20 to 49 people. Encounters on the river banks were much higher in summer (M = 42) than winter (M = 9). **Overall, respondents encountered an average of 65 people in total on their visit with the largest proportions encountering 20 to 49 (31%) or 50 to 99 (22%) people. Total average encounters were higher in summer (M = 88) than winter (M = 24).**
- In total, 38% of respondents reported being in sight of others at the boat ramps "nearly all of the time," whereas 39% were in sight of others either "25% of the time" or "never." A similar split distribution was observed for time in sight of others on the river (39% "nearly all of the time," 35% "about 25% of the time" or "never") and river banks (43% "nearly all of the time," 32% "about 25% of the time" or "never"). **Overall, 42% of respondents reported being in sight of other people "nearly all of the time" during their visit, 32% were in sight of others 50-75% of the time, and 27% were in sight of others "about 25% of the time" or "never." Summer visitors were more likely than winter users to be in sight of other people more often**, as the majority of summer visitors reported being in sight of others at the boat ramps (50%), on the river (54%), on the river banks (58%), and in total / overall on their visit (57%) "nearly all of the time."
- **In total, 64% of respondents considered opportunities for solitude to be moderately (40%) or extremely (24%) important**. Only 11% believed this was not important. There was no difference between summer and winter users in the importance of solitude.
- On a 9-point scale from 1 "not at all crowded" to 9 "extremely crowded," **average crowding ranged from 2.71 (boat ramps) to 3.07 (on the river banks) and was 3.04**

overall, suggesting visitors felt "slightly crowded" on average. Average crowding was significantly lower in the winter (*M* = 2.43) compared to the summer (*M* = 3.38), with the highest crowding on the river banks during the summer (*M* = 3.49).

- **In total, 49% of respondents felt crowded (3-9 on scale) during their visit with the highest crowding (51%) on the river banks**. **In addition, 43% felt crowded on the river and the lowest crowding was at the boat ramps (41%). Crowding was higher in the summer than winter.** In total, 58% of summer visitors felt crowded, whereas 35% of winter recreationists felt crowded. In particular, 45% of summer visitors felt crowded at the boat ramps compared to 33% of winter users. On the river itself, 50% of summer recreationists felt crowded compared to 32% of winter visitors. **The most substantial difference was on the river banks where 61% of summer visitors felt crowded compared to 33% of winter users. These results suggest that conditions in winter can be considered "suppressed crowding" where crowding problems do not exist and the area may offer unique low density experiences. Conditions in the summer on the river and at the boat ramps are "low normal" where major user access, displacement, and crowding problems are not likely to exist at this time, and these areas may offer low density experiences. Locations on the river banks in the summer are "high normal" crowding areas where they have not exceeded their capacity, but are trending in that direction. By comparison, however, crowding on the Lower Sandy Wild and Scenic River in both summer and winter is lower than crowding on many nearby rivers, including the Deschutes, McKenzie (lower, middle), Clackamas, and Rogue Rivers**.
- **The majority of respondents (54%) considered the current number of people at the river to be "about right,"** whereas equal proportions considered the number to be low or too low (24%) and high or too high (24%). **Summer visitors were slightly more likely (28%) than winter users (17%) to consider current visitation to be high or too high**.
- **Respondents would accept seeing a maximum average of 21 people at the *boat ramps* at one time** with the largest proportions accepting no more than 10 to 19 (36%) or 20 to 49 people (22%). **Maximum acceptance at the boat ramps was higher in the summer (*M* = 33) than winter (*M* = 12). Respondents would accept a maximum of 29 people *on the river* at one time** with 25% accepting no more than 10 to 19 people and 33% accepting no more than 20 to 49 people on the river. **Maximum acceptance of people at one time on the river was higher in the summer (*M* = 37) than winter (*M* = 20). Maximum acceptance of seeing people *on the river banks* averaged 38 people** with 21% accepting no more than 10 to 19 people and 33% accepting no more than 20 to 49 people. **Maximum acceptance of seeing people on the river banks was much higher among summer visitors (*M* = 52) than winter users (*M* = 18). Overall, respondents would accept seeing no more than 69 people in total when visiting the Sandy River** with the largest proportion accepting no more than 20 to 49 (35%) other people. **Average maximum acceptance of people at one time was significantly higher in summer (*M* = 89) than winter (*M* = 43)**.
- In total, 37% of respondents would accept being in sight of others at the boat ramps no more than "50% of the time" and 23% would accept being in sight of others at boat ramps no more than "25% of the time." Similar proportions were observed for maximum time in sight of others on the river (39% "about 50% the time," 25% "about 25% of the time") and river banks (39% "about 50% the time," 24% "about 25% of the time"). **In total, 42% of users would accept being in sight of other people "about 50% of the time" and 21% would accept being in sight of others no more than "about 25% of the time." Summer**

visitors, however, were more likely than winter users to accept being in sight of other people more often.

- **At all locations (boat ramps, on river, on river banks) for each season (winter, summer), the majority (65% to 91%) of respondents encountered fewer people than their maximum acceptance (i.e., normative tolerance)**. The largest proportions of users who encountered more people than their maximum acceptance were associated with summer visitor evaluations on the river banks (34%) and their overall trip (35%).
- **In the winter, the majority (76% to 81%) of respondents spent less time in sight of other people than their maximum acceptance (i.e., normative tolerance) at all locations (boat ramps, on river, on river banks). In the summer, however, about half of respondents spent more time in sight of other people than their maximum acceptance on the river (51%) and river banks (49%), and during their overall trip (50%)**. In other words, maximum tolerance limits for time in sight of others were being violated for approximately half of summer visitors at all sites except boat launches.
- **The estimated average daily use on the Lower Sandy Wild and Scenic River in *winter* is approximately 97 people on weekdays and 219 people on weekends and holidays**. The lowest average weekday use in winter occurs at Dodge Park (M = 13 people per day) and the highest is at Oxbow Regional Park (M = 47 people per day). The lowest average daily weekend and holiday use in winter also occurs at Dodge Park (M = 32 people per day) and the highest is also at Oxbow Regional Park (M = 100 people per day). **Visitation is much higher in the summer. The estimated average daily use in the *summer* is approximately 842 people on weekdays and 1798 people on weekends and holidays**. The lowest average weekday use in the summer occurs at Dodge Park (M = 72 people per day) and the highest is at Dabney State Recreation Area (M = 413 people per day). The lowest average daily weekend and holiday use in summer also occurs at Dodge Park (M = 172 people per day), whereas the highest is at Oxbow Regional Park (M = 991 people per day). **Across summer and winter seasons combined, the average daily use on this river is approximately 469 people on weekdays and 1009 on weekends and holidays**. These estimates, however, should be treated with caution due to methodological constraints.
- On winter days with low (up to 56 people per day) or moderate (112 people per day) use levels and also on summer days with low use levels (up to 532 people per day), average crowding was 1 or 2 on the 9-point scale (i.e., "not at all crowded"). **Even on the busiest (i.e., high use) winter days and on summer days with moderate use levels, average crowding did not exceed 3 (i.e., "slightly crowded"). It was only on the busiest (i.e., high use) summer days when average crowding reached 5 (i.e., "moderately crowded"). Social capacity issues, therefore, do not seem to be problematic in most cases on this river, except perhaps on the busiest summer days when the area is not yet exceeding capacity, but is trending in that direction**.
- The most commonly observed conflict behaviors reported by respondents were anglers (i.e., people fishing) being too close (36%) and not being aware of other people (34%), and tubers and floaters not being aware of other people (34%). **Observed conflict behaviors were more common among winter users than summer visitors. Among winter users, for example, the majority observed anglers being too close (61%), not being aware of other people (56%), and being rude or discourteous (52%). Among summer visitors, almost 30% observed tubers and floaters not being aware of other people (29%), being rude or discourteous (28%), and being too close (28%). Despite these observed behaviors, only 24% of respondents experienced conflict with tubers and floaters (76%**

no conflict), 19% experienced conflict with anglers (81% no conflict), 17% were in conflict with rafters (83% no conflict), and 12% experienced conflict with kayakers and canoeists (88% no conflict). Almost all of this conflict was interpersonal (i.e., direct contact) and few reported social values conflict (i.e., differences in the appropriateness of the activity without direct contact). Conflict, however, was higher among winter users than summer visitors. Among winter users, 36% of recreationists reported conflict with tubers and floaters during any of their visits to this river with most of this conflict being interpersonal (22%). In addition, 35% of winter users experienced conflict with anglers with most of this also being interpersonal (25%). Among summer visitors, the greatest amount of conflict was with tubers and floaters, but only 17% were in conflict with these activities.

- **In total, 57% of respondents would make no changes to their visits to the Sandy River in the future based on what they experienced**. Approximately half of respondents would be temporally displaced by coming back on a different day of the week (50%), at a different time of day (45%), or in a different season of the year (43%). In addition, 46% of users would visit other places along this river instead (i.e., intrasite spatial displacement) and 38% would visit other rivers instead (i.e., intersite spatial displacement). Respondents would be least likely to change the way they think about the area, deciding it offers a different experience than first believed (28%). There were no significant differences between summer and winter visitors in likelihood of adopting these responses in the future.

Support for Potential Management Strategies

- **The only potential management strategy that received support from the majority of visitors was providing more opportunities for solitude away from people (50%)**.
- **In total, 45% of respondents supported doing more to inform people about rules and regulations, and inform about appropriate visitor behavior.**
- **Among respondents, 41% would also like to see improved river access points (including boat ramps) and more access points.**
- **The least supported potential management strategy was to limit the number of people allowed per day (14%)**, which is not surprising given the relatively low encounter and crowding levels (discussed earlier).
- **Winter recreationists were more likely to support doing more to inform people about current rules / regulations (51% vs. 41%)**.
- **Summer visitors were more supportive of providing more parking (42% vs. 29%) and zoning different recreation activities to specific areas (26% vs. 18%)**.

Demographic Characteristics

- **In total, 58% of respondents were male and 42% were female**, but there was a large difference between winter and summer **with winter dominated by males (88%), whereas there were slightly more females (59%) than males (41%) in the summer**.
- **The average age of respondents was 38 years old. The largest proportions of users were 20 to 29 years old (26%) and 30 to 39 years old (32%). On average, winter users were slightly older (*M* = 42 years old) than summer visitors (*M* = 35 years old)**.
- **Almost all respondents resided in Oregon (89%)** with small percentages from Washington State (6%), California (2%), and elsewhere (3%). **The majority of visitors lived in Multnomah County (58%)**, an additional 22% resided in Clackamas County, and

8% lived in Washington County. **The largest percentages of respondents (43%) resided in Portland** and nearby areas such as Gresham (12%) and Sandy (9%).

Recommendations

- Results showed substantial differences between winter and summer recreation use on the Lower Sandy Wild and Scenic River. There were major differences between seasons in user group activities (e.g., 79% fishing in winter vs. 75% swimming or tubing in summer), demographic characteristics (e.g., 88% males in winter vs. 59% females in summer), trip characteristics (e.g., average group size of 2.7 people in winter vs. 5.6 in summer), and visitor experiences (e.g., 35% felt crowded and 16% were in sight of other people nearly all of the time in winter vs. 58% felt crowded and 57% were in sight of other people nearly all of the time in summer). **These findings suggest that the different seasons provide substantially different recreation opportunities and experiences at this river. Management, therefore, should be tailored to be specific to context (e.g., season, location, user group) to preserve this diversity of recreation opportunities**.
- There is high repeat visitation, as 84% of respondents had previously visited the Lower Sandy Wild and Scenic River and almost half (49%) had visited more than 10 times before. In addition, use on this river is estimated at almost 1800 people per day on summer weekends and holidays, and more than 200 people per day on weekends and holidays in the winter. **It is clear that this river is important to the lives of many people and plays a pivotal role in the community through the provision of ecosystem services. If population trends continue diversifying and urbanizing, this river will likely play an even greater role in the community in the future, so it will be critical for managers to work closely with recreationists and the community in planning and management efforts, and disseminate information to users and the community**.
- Few recreationists surveyed in both winter (18%) and summer (3%) visited this river with a professional guide or commercial outfitter. At some major rivers, managing agencies often depend on guides and outfitters to convey safety and educational information to visitors. **At the Lower Sandy Wild and Scenic River, however, managers cannot depend on guides and outfitters to provide the majority of visitors with information and education, and instead need to ensure that other opportunities for up-to-date information are available to convey important messages (e.g., signs, brochures, internet website information, frequent ranger visits and interactions with visitors). Management should also protect non-outfitted opportunities, which are particularly important at this river**.
- **Overall satisfaction among recreationists at the Lower Sandy Wild and Scenic River is high, as almost all (91%) were satisfied and the highest proportion was "very satisfied" (49%)**. Overall satisfaction, however, is almost always high in recreation areas with most studies reporting more than 80% of recreationists are satisfied. **High overall satisfaction does not mean that respondents are satisfied with every aspect of their experience, there is nothing problematic with the setting or experience, and there is no reason to make improvements. Instead, it is important to examine other aspects of the setting and experience (e.g., safety, crowding, conflict) to inform management**.
- In total, 42% of all respondents were within sight of other visitors "nearly all of the time." In the summer, 57% of respondents were within sight of others "nearly all of the time." These findings suggest a potential problem because having opportunities for solitude was moderately or extremely important to most visitors (64%). In addition, the only potential management strategy that received support from the majority of respondents, especially in

the summer (51%), was providing visitors with more opportunities for solitude away from others. Few respondents (14%), however, supported limiting the number of people allowed per day. **Managers, therefore, may want to consider other strategies that would create opportunities for solitude and time away from seeing other people along the river (e.g., more river hiking trails, more secluded beaches). In addition, managers should consider informing and educating visitors about periods of high use and alternative times and sites along the river that may offer more opportunities for solitude**.

- Results showed that 72% of respondents reported alcohol being consumed by visitors at least once at the Lower Sandy Wild and Scenic River. In total, 25% saw alcohol being consumed "once or twice," 26% "sometimes," and 21% "many times." Summer visitors (25%) were more likely than winter users (15%) to see this happening "many times." **Given the reported safety risks at this river (e.g., river currents, potential for high water) and that alcohol is prohibited at some sites along this river (e.g., Oxbow Regional Park, Dodge Park), managers might consider additional education and enforcement**.
- Respondents supported the strategy of encouraging managers to do more to inform people about current rules and regulations (45%) and appropriate visitor behavior (45%) while visiting sites along the Lower Sandy Wild and Scenic River. **Signs, interactive displays, brochures, internet websites, computer and smartphone apps, QR codes, self-guided trails, videos, orientation sessions, and a variety of other methods are useful for disseminating information to outdoor recreationists. Frequent ranger patrols, interactions with visitors, and friendly enforcement may also be useful, especially during high use times, to provide more management presence and reduce potentially depreciative behaviors (e.g., alcohol use)**.
- This research estimated that visitor use levels along the Lower Sandy Wild and Scenic River, especially on summer weekends and holidays, can reach almost 1800 people per day. Despite these use levels, however, there was generally low crowding among visitors (49% felt crowded overall) in comparison to other major rivers in the Pacific Northwest (e.g., up to 100% crowded on the Deschutes River, 70% crowded on the Clackamas River). **Results along the Lower Sandy Wild and Scenic River suggest that conditions in the winter can be considered "suppressed crowding" where crowding problems do not exist and the area may offer unique low density experiences. In addition, conditions in the summer both on the river and at the boat ramps are "low normal" where access, displacement, and crowding problems are not likely to exist at this time and these areas may also offer low density experiences. Managers should consider ways to preserve this diversity of low density opportunities and experiences for this unique resource close to Oregon's largest metropolitan area. It is much easier to consider and establish capacities when use levels are low**.
- **Locations on the river banks (61% crowded) in the summer, however, are "high normal" areas that have not exceeded capacity, but are trending in that direction**. In the summer, approximately half of respondents also spent more time in sight of other people than their maximum tolerance on the river (51%), along the river banks (49%), and during their overall trip (50%). **As a result, the river and river bank areas in the summer should be monitored and studied closely to see if increased use is expected, allowing management to anticipate future problems proactively instead of reactively after problems occur**.
- Combining the crowding, encounter, and use level information showed that it was mainly on the busiest (i.e., high use) summer days along the Lower Sandy Wild and Scenic River when

average crowding became "moderately crowded." **Managers should monitor this river, especially in the summer, to ensure that: (a) daily use levels do not regularly exceed approximately 500 vehicles and 2000 people (i.e., average high use level in the summer), and (b) each visitor does not regularly encounter more than approximately 100 people during their visit (i.e., average high reported encounters in summer)**. This figure for reported encounters is also relatively consistent with visitors' maximum normative acceptance of encounters with other people in summer (M = 89). **Given that this is a federally designated Wild and Scenic River, managers should identify capacities based on accurate scientific information, such as the data in this study, and monitor and manage (e.g., parking lot size restrictions, increased access fees, zoning) these capacities to ensure that conditions and experiences do not deteriorate**. Visitor norms can be useful for establishing standards, informing these capacities, and improving quality experiences. These standards can then be monitored to ensure they are not being violated and conditions and experiences are not deteriorating. Normative responses from respondents suggest that, in the winter, these standards could be set at encountering no more than approximately 20 other people at boat ramps, on the river, and on the river banks at one time, with no more than 50 encounters with other people in total. In the summer, these standards could be set at encountering no more than approximately 50 other people at boat ramps, on the river, and on the river banks at one time, with no more than approximately 100 encounters with other people in total.

- Although overall conflict with various activity groups visiting along the Lower Sandy Wild and Scenic River was quite low, there was evidence of some conflict among groups. Among winter users, for example, the majority observed anglers (i.e., people fishing) being too close (61%), not being aware of other people (56%), and being rude or discourteous (52%). In addition, 35% of winter recreationists experienced conflict with anglers on the river. These behaviors initiated interpersonal conflict (i.e., direct contact), so **there is a need to further examine issues associated with angler proximity, interactions, and behaviors when fishing, and even consider implementing guidelines associated with these issues. In the meantime, managers should increase monitoring of these issues and interact more frequently and consistently with anglers in the winter to understand their experiences and concerns to help to mitigate conflicts and improve user experiences**.
- Overall, results from the survey generally suggest that most recreationists on the Lower Sandy Wild and Scenic River consider this to be a relatively mature river with reasonably stable management, use, and impacts. **Although monitoring is needed to watch for potential upward trends (e.g., use levels, crowding, conflict) at certain times of the year, current users do not seem to be overly distressed by existing use or conflicts, and are not widely supportive of implementing many new changes to existing management**. In addition, existing facilities seem capable of handling recreationist needs and existing demand. This river may not provide unique low density experiences at all times throughout the year, especially on busy days in the summer, but it does appear to offer some of these types of opportunities in winter and during low use days in the summer. **Capacities corresponding with access and parking options are likely to maintain conditions for high quality opportunities, at least for the near term**.

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INTRODUCTION AND OBJECTIVES

The Sandy River flows from the slopes of Mount Hood to the Columbia River near Troutdale and encompasses extensive fish and wildlife habitat, geologic features, and scenic views. In recognition of these and other values, a 12.5 mile segment of the lower section of this river between Dodge Park and Dabney State Recreation Area was added to the national Wild and Scenic River System by the 1988 Oregon Omnibus Wild and Scenic Rivers Act (Figure 1). In addition, this river was recognized by the citizens of Oregon for its scenic values under the State Scenic Waterways program.

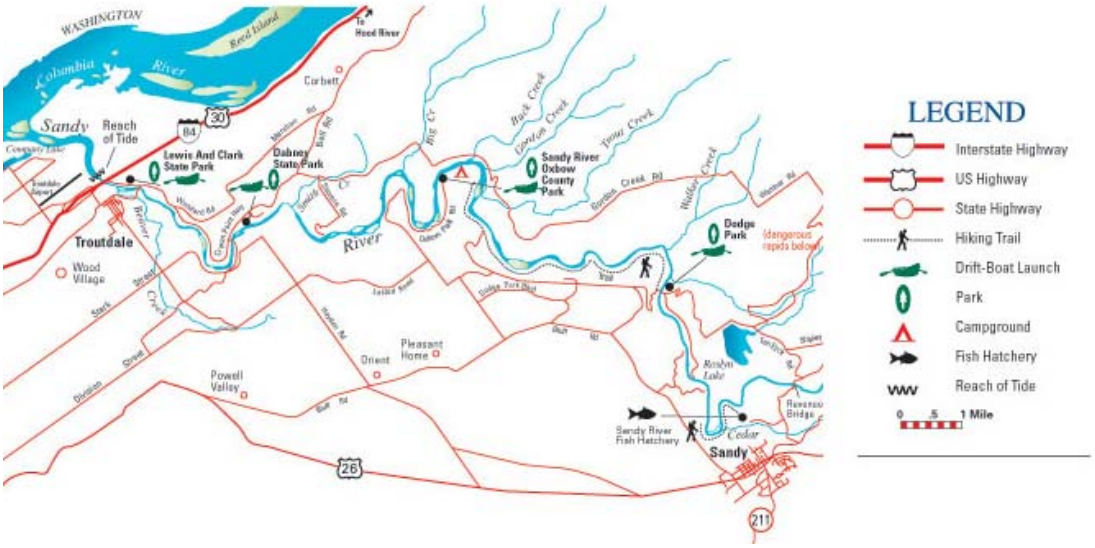

Figure 1. Map of Lower Sandy Wild and Scenic River

The Lower Sandy Wild and Scenic River provides extensive recreation opportunities to residents of the Pacific Northwest and beyond. Both commercially guided and self-guided activities are common, including angling, kayaking, rafting, tubing, and other forms of boating (e.g., drift boat). There are also a number of parks and recreation sites along this section of river, such as Dodge Park (Portland Water Bureau), Oxbow Regional Park (Metro), and Dabney State Recreation Area (Oregon Parks and Recreation Department).

To effectively protect and enhance this river's values, the Bureau of Land Management, in cooperation with Oregon Parks and Recreation Department, completed a management plan for the lower section in 1993. This plan established a set of goals and objectives along with specific direction for the management of commercial and non-commercial recreation, including the permitting of all commercial on-water use for the Wild and Scenic River section. However, little

data on visitor experiences and recreation use along this section of river have been collected since 1993. Anecdotal information and staff observations suggest that levels of non-motorized boating and angling (e.g., drift boat) remain high and that a substantial portion of this use is commercial in nature. Information is needed on current visitor experiences and use levels on the lower section of the Sandy River. Specific objectives of this project, therefore, were to:

- Provide an estimate of current use levels on this section of the river, especially between Dodge Park and Dabney State Recreation Area, with an emphasis on the winter and summer months.
- Survey both commercially guided and self-guided visitors recreating on this section of the river in the winter and summer months to describe their current experiences (e.g., encounters, satisfaction) and identify any potential concerns such as user conflict, crowding, and spatial and temporal displacement.

This report addresses these objectives by summarizing responses from an onsite survey of recreationists visiting the Lower Sandy Wild and Scenic River in both winter and summer of 2014. Results improve understanding of users and their preferences at this river, and can be used for informing decision making and management along this river.

METHODS

Data were obtained from questionnaires (Appendix A) administered randomly to recreationists visiting the Lower Sandy Wild and Scenic River in both winter (February to April, 2014) and summer (July to September, 2014). Questionnaires were administered on both weekdays and weekends at three sites that serve as the main put-in and take-out points: (a) Dodge Park, (b) Oxbow Regional Park, and (c) Dabney State Recreation Area. Recreationists were approached in person and asked to complete the questionnaire onsite. Onsite questionnaires were necessary because personal contact information (e.g., mail and email addresses, telephone numbers) required for alternative approaches such as telephone or mail surveys was not currently available from recreationists, as managing agencies do not regularly collect this information. Questionnaires were printed on both sides of one legal sized (8 ½ x 14) page and took most respondents approximately 10 to 15 minutes to complete. Respondents were provided with a clipboard and pen to complete the questionnaire onsite.

Table 1. Completed questionnaires at each site in each season

	Winter	Summer	Total
Dodge Park	28	145	173
Oxbow Regional Park	89	142	231
Dabney State Recreation Area	97	97	194
Total	214	384	598

In total, 598 questionnaires were completed by recreationists with a high overall response rate of 86% (Table 1). This sample size allows generalizations about the population of recreationists visiting the Lower Sandy Wild and Scenic River at the 95% confidence level with a margin of error of ± 4%, which is better than the conventional standard that is accepted in recreation research (i.e., ± 5%; Salant & Dillman, 1994; Vaske, 2008). Table 1 shows that 214 questionnaires were completed in winter (83% response rate) and 384 were completed in summer (88% response rate) with 29% of questionnaires completed at Dodge Park (n = 173), 39% at Oxbow Regional Park (n = 231), and 32% at Dabney State Recreation Area (n = 194).

The questionnaire included questions on a range of topics such as prior visitation, activity participation, skill level and specialization, satisfaction, encounters, crowding, conflict, support of potential management strategies, and demographic characteristics. Results in this report are grouped into subsections according to project objectives and questionnaire items. Within each subsection, analyses are conducted to reveal total responses across all respondents, and also compare responses between those recreating on the river in the winter versus summer months. Percentages, crosstabulations, and bivariate inferential statistical tests were used for analyzing and presenting results. Many of these tests produce p-values and when a p-value associated with any test (i.e., χ^2, t) presented in this report is $p \leq .05$, a statistically significant relationship or difference was observed. In addition to these tests of significance, effect size statistics (e.g., phi ϕ, Cramer's V, point-biserial correlation r_{pb}) were used for examining the strength of relationships. Effect sizes of .10 typically suggest "weak" (Cohen, 1988) or "minimal" (Vaske, 2008) relationships or differences. Effect sizes of .30 are usually considered "medium" or "typical," and .50 or greater are "large" or "substantial;" larger effect sizes imply stronger relationships or differences. To highlight findings, some data were recoded into major response categories (e.g., agree, disagree; support, oppose), but descriptive results and percentages of all uncollapsed questions (e.g., strongly, slightly agree) are provided in Appendix B.

RESULTS

Visit Characteristics

Activity Groups. Respondents were asked to check all of the activities in which they participated on the Lower Sandy Wild and Scenic River on the trip when they were surveyed. Table 2 shows that the most popular activities across seasons were swimming (62%), fishing from the river bank (33%), and tubing / floating (30%). The least popular activities were canoeing (4%) and kayaking (9%). Participation rates differed significantly between winter and summer for five of these eight activities; participation in only rafting (19%), kayaking, and canoeing did not differ between seasons. The most popular activities in winter were fishing from the river bank (71%) and fishing from a boat (41%), whereas the most popular summer activities were swimming (89%) and tubing / floating (43%).

Table 2. Activities at the river [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	ϕ
Swimming	14	89	62	348.99	< .001	.74
Fishing from the river bank	71	11	33	231.94	< .001	.62
Tubing / floating	7	43	30	102.77	< .001	.38
Other [b]	6	35	25	77.32	< .001	.33
Rafting	22	17	19	2.38	.123	.06
Fishing from a boat	41	3	17	138.69	< .001	.48
Kayaking	10	8	9	.98	.323	.04
Canoeing	4	4	4	.01	.996	.01

[a] Cell entries are percentages (%) who reported participating in the activity on their visit. Percentages do not sum to 100% because respondents could check more than one activity from the list.

[b] The most popular "other" activities, in order, were: sunbathing / relaxing, picnicking / barbeque, camping, disc golf, and hiking.

Respondents were then asked to specify the one primary activity in which they participated on this river during their visit. Table 3 shows that the most common primary activities across seasons were swimming (40%) and fishing from the river bank (20%). The least common activities were canoeing (2%) and kayaking (3%). There was, however, a statistically significant and "substantial" difference between winter and summer. The most popular winter activities were fishing from the river bank (56%) and fishing from a boat (23%), whereas swimming (61%) was by far the most popular summer activity.

Table 3. Primary activities at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Swimming	1	61	40
Fishing from the river bank	56	1	20
Other [b]	2	18	13
Tubing / floating	1	14	10
Fishing from a boat	23	0	8
Rafting	12	2	6
Kayaking	5	2	3
Canoeing	2	1	2

[a] $\chi^2 = 522.97$, $p < .001$, $V = .90$.

[b] The most popular "other" activities, in order, were: sunbathing / relaxing, picnicking / barbeque, camping, disc golf, and hiking.

Skill Level and Specialization. Respondents were then asked to self-report their skill level in this primary activity and Table 4 shows that the largest proportions rated their skill as intermediate (34%) or advanced (30%). The smallest proportions of respondents rated their skill as beginner (5%) or novice (12%). Differences between winter and summer users were statistically significant, but weak or minimal.

Table 4. Skill level in primary activities [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Beginner	8	3	5
Novice	13	12	12
Intermediate	32	35	34
Advanced	31	29	30
Expert	16	22	20

[a] $\chi^2 = 10.15$, $p = .038$, $V = .13$.

An additional question measured specialization in this primary activity. Recreation specialization involves "a continuum of behavior from the general to the particular, reflected by equipment and skills used in the sport and activity setting preferences" (Bryan, 1977, p. 175). At one end of this continuum are novices or infrequent participants who do not consider the activity to be a central life interest or show strong preferences for equipment or technique. The other end of this continuum includes more avid participants who are committed to the activity and use more sophisticated approaches. Recreationists have been thought to progress to higher stages along this continuum reflected by increasing skill, equipment, participation, and commitment

(Manning, 2011; Scott & Shafer, 2001). Table 5 shows that 44% of respondents self-reported as moderately specialized and 36% reported themselves as highly specialized. The majority of winter recreationists reported they were highly specialized (51%), whereas the majority of those visiting in the summer reported they were moderately specialized (50%). Taken together, winter recreationists appear to be more specialized than summer users.

Table 5. Specialization in primary activities [a]

Specialization groups [b]	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Minimally specialized	15	23	20
Moderately specialized	34	50	44
Highly specialized	51	28	36

[a] $\chi^2 = 32.95$, $p < .001$, $V = .24$.

[b] Questionnaire wording for self-classification of specialization = Minimally specialized: "This is an enjoyable, but infrequent activity that is incidental to my other outdoor interests. I am not highly skilled in this activity." Moderately specialized: "This activity is important to me, but is only one of the outdoor activities in which I participate. My participation in this activity is inconsistent and I consider myself to be moderately skilled in this activity." Highly specialized: "This is my primary outdoor activity and I consider myself to be highly skilled in this activity. I participate in this activity every available chance I get."

Previous Visitation. Respondents were asked if they had ever visited the Sandy River before. Table 6 shows that 84% of respondents had visited before, whereas 16% had not visited previously. There was, however, a significant difference between winter and summer with winter respondents being slightly more likely (89%) than summer users (81%) to have visited before.

Table 6. Previous visitation to the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Yes, visited before	89	81	84
No, not visited before	11	19	16

[a] $\chi^2 = 7.90$, $p = .005$, $\phi = .11$.

Respondents who had previously visited were then asked how many trips they had made to this river. Table 7 shows that repeat visitation was extremely high with users having visited an average of 85 times in the past. The highest proportions, however, had made 3 to 5 (20%) and 6 to 10 (20%) previous trips to this river with the majority (52%) visiting 10 or fewer times. On average, winter recreationists had visited significantly more times (M = 145 trips) than summer users (M = 45 trips). For example, 32% of winter recreationists had visited more than 50 times previously, whereas only 15% of summer users had visited this many times.

Table 7. Number of previous visits to the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
1 – 2 trips	9	14	12
3 – 5 trips	17	22	20
6 – 10 trips	12	26	20
11 – 20 trips	14	14	14
21 – 50 trips	16	10	13
51 – 100 trips	13	8	10
More than 100 trips	19	7	12
Mean / average trips [b]	145	45	85

[a] $\chi^2 = 26.93$, $p < .001$, $V = .27$.
[b] $t = 4.01$, $p < .001$, $r_{pb} = .24$.

Group Size. Respondents were asked to report how many people, including themselves, accompanied them at the Sandy River on the trip when they were surveyed. Table 8 shows that the average group size was between 4 and 5 people. Groups most commonly consisted of 3 or 4 people (29%), 2 people (21%), or 5 to 7 people (20%). Summer visitors, on average, visited in significantly larger groups (M = 5.58 people) than winter users (M = 2.68). The majority of summer users visited in groups of 3 to 4 (32%) or 5 to 7 people (25%), whereas the majority of winter recreationists visited either on their own (36%) or with another person (27%).

Table 8. Group size at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
1 person (alone)	36	4	15
2 people	27	18	21
3 or 4 people	22	32	29
5 to 7 people	11	25	20
8 to 10 people	4	12	9
More than 10 people	1	9	6
Mean / average [b]	2.68	5.58	4.43

[a] $\chi^2 = 132.14$, $p < .001$, $V = .49$.
[b] $t = 9.26$, $p < .001$, $r_{pb} = .31$.

Commercial Activities. Two questions focused on commercial activities on the Sandy River. First, respondents were asked if they were visiting with a professional guide or outfitter on the day when they were surveyed. Second, the questionnaire asked if they used a commercial shuttle service when visiting. Table 9 shows that 89% of recreationists did not visit with a professional

guide or outfitter, 8% did visit with a guide or outfitter, and 3% of those who completed questionnaires were guides on the river. Winter users were significantly more likely to visit with a guide (18%) compared to summer visitors (3%). Boaters were more likely to visit with a guide, as 40% of kayakers, 29% of those fishing from a boat, and 26% of rafters visited with a guide compared to 10% or fewer participants in other activities visiting with a guide (e.g., fishing from the river bank [10%], tubers / floaters [5%], swimmers [2%]).

In total, 90% of respondents did not use a commercial shuttle service when they were visiting and only 10% used a shuttle (Table 9). Winter users were significantly more likely to use a shuttle service (24%) compared to summer users (2%). Respondents fishing from a boat were by far the most likely to use a commercial shuttle service (60%) compared to participants in other activities (e.g., fishing from the river bank [12%], rafters [10%], tubers / floaters [4%]).

Table 9. Commercial activities at the river

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)	χ^2 value	p value	ϕ / V
Visited with professional guide / outfitter				42.33	< .001	.33
No	75	96	89			
Yes	18	3	8			
I am a guide	8	1	3			
Used commercial shuttle service				71.55	< .001	.35
No	76	98	90			
Yes	24	2	10			

Locations of Visitation. Respondents were asked several questions about places along the river they visited during their trip, the location where they spent the most time, their put-in location, and their take-out location. The map in Figure 1 illustrates locations along the river. Table 10 shows that the most popular location was Oxbow Regional Park (57%), followed by Dodge Park (42%) and Dabney State Recreation Area (29%). In addition, 23% of respondents visited the stretch of river between Oxbow Regional Park and Dabney State Recreation Area, whereas 16% visited the stretch of river between Dodge Park and Oxbow Regional Park. Fewer than 15% visited the areas upriver from Dodge Park and downriver from Dabney State Recreation Area. Winter recreationists were more likely than summer visitors to visit each location, especially the stretches of river between Oxbow Regional Park and Dabney State Recreation Area, and between Dodge Park and Oxbow Regional Park.

Table 10. Places visited at the river [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	ϕ
Oxbow Regional Park	69	50	57	21.27	< .001	.18
Dodge Park	44	40	42	.68	.411	.03
Dabney State Recreation Area	35	26	29	5.43	.020	.10
Between Oxbow Regional Park and Dabney State Recreation Area	42	12	23	68.44	< .001	.34
Between Dodge Park and Oxbow Regional Park	31	7	16	55.86	< .001	.31
Upriver from Dodge Park	24	10	15	20.67	< .001	.19
Downriver from Dabney State Recreation Area	14	7	10	6.51	.011	.11

[a] Cell entries are percentages (%) who reported visiting the location on the day they were surveyed. Percentages do not sum to 100% because respondents could check more than one location from the list.

Table 11. Primary location at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Oxbow Regional Park	35	37	36
Dodge Park	12	36	27
Dabney State Recreation Area	7	16	14
Between Oxbow Regional Park and Dabney State Recreation Area	21	6	11
Between Dodge Park and Oxbow Regional Park	20	2	8
Upriver from Dodge Park	4	2	3
Downriver from Dabney State Recreation Area	1	1	1

[a] $\chi^2 = 110.39$, $p < .001$, $V = .45$.

Respondents were then asked to specify the one primary location where they spent the most time on the day when they were surveyed. Table 11 shows that the locations where respondents spent the most time were Oxbow Regional Park (36%) and Dodge Park (27%), whereas the locations where respondents spent the least amount of time were upriver from Dodge Park (3%) and downriver from Dabney State Recreation Area (1%). Winter recreationists were more likely than summer visitors to spend more time on the stretches of river between Oxbow Regional Park and Dabney State Recreation Area (21% vs. 6%), and between Dodge Park and Oxbow Regional Park (20% vs. 2%), whereas summer visitors were more likely than winter users to spend the most time at Dodge Park (36% vs. 12%) and Dabney State Recreation Area (16% vs. 7%).

The questionnaire also asked respondents to identify their primary put-in and take-out locations on the day they were surveyed. Table 12 shows the most common *put-in location* was Oxbow

Regional Park (37%) followed by Dodge Park (31%). The least common put-in locations were Sandy River Park (2%) and Dabney State Recreation Area (9%). Winter recreationists (43%) were more likely than summer users (34%) to put-in at Oxbow Regional Park, whereas summer visitors (13%) were more likely than winter users (2%) to put-in at Dabney State Recreation Area. In total, 20% of respondents reported they did not boat, raft, or float on the river.

Table 12. Primary put-in location [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Oxbow Regional Park	43	34	37
Dodge Park	27	32	31
Did not boat, raft, or float on the river	21	20	20
Dabney State Recreation Area	2	13	9
Sandy River Park	2	2	2
Other	4	0	2

[a] $\chi^2 = 43.34$, $p < .001$, $V = .25$.

Table 13 shows the most common *take-out location* was Dabney State Recreation Area (28%) followed by Oxbow Regional Park (26%) and Dodge Park (20%). The least common take-out locations were the Sandy River Delta (1%), Glenn Otto Community Park (1%), and Lewis and Clark State Park (2%). Winter recreationists (43%) were more likely than summer users (20%) to take-out at Dabney State Recreation Area, whereas summer users (28%) were more likely than winter recreationists (5%) to take-out at Dodge Park. In total, 22% of respondents answered this question by reporting they did not boat, raft, or float on the river.

Table 13. Primary take-out location [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Dabney State Recreation Area	43	20	28
Oxbow Regional Park	27	26	26
Did not boat, raft, or float on the river	22	23	22
Dodge Park	5	28	20
Lewis and Clark State Park	3	1	2
Glenn Otto Community Park	0	1	1
Sandy River Delta	0	1	1

[a] $\chi^2 = 73.53$, $p < .001$, $V = .34$.

Section Summary. Taken together, results in this section showed:

- **The most popular activities on this section of river across seasons were swimming (62%), fishing from the river bank (33%), and tubing / floating (30%)**. **The most popular winter activities were fishing from the river bank (71%) and from a boat (41%), whereas the most popular summer activities were swimming (89%) and tubing / floating (43%)**.
- **The most common main / primary activities across seasons were swimming (40%) and fishing from the river bank (20%). The most popular primary winter activities were fishing from the river bank (56%) and from a boat (23%), whereas swimming (61%) was by far the most popular primary summer activity**.
- **The largest proportions of respondents self-reported their skill level in their main / primary activity as intermediate (34%) or advanced (30%)**. In addition, 44% of respondents reported they were moderately specialized in their activity and 36% reported they were highly specialized. **The majority of winter recreationists reported they were highly specialized (51%), whereas the majority of those visiting in the summer reported they were moderately specialized (50%)**.
- **In total, 84% of respondents had visited this river before, whereas 16% had not visited previously. Winter respondents were slightly more likely (89%) than summer users (81%) to have visited before. Repeat visitation was extremely high** with users visiting an average of 85 times in the past. The highest proportions, however, had made 3-5 (20%) and 6-10 (20%) previous trips with the majority (52%) visiting 10 or fewer times. On average, however, winter recreationists had visited many more times (*M* = 145 trips) than summer users (*M* = 45 trips).
- **Average group size was between 4 and 5 people**. Groups most commonly consisted of 3 or 4 people (29%), 2 people (21%), or 5 to 7 people (20%). **Summer visitors, on average, visited in larger groups (*M* = 5.58 people) than winter users (*M* = 2.68)**.
- **In total, 89% of respondents did not visit with a professional guide / outfitter, 8% did visit with a guide / outfitter, and 3% were guides on the river. Winter users were more likely to visit with a guide (18%) compared to summer users (3%). Boaters were more likely to visit with a guide**, as 40% of kayakers, 29% of those fishing from a

boat, and 26% of rafters visited with a guide compared to fewer than 10% of participants in other activities visiting with a guide.

- **In total, 90% of respondents did not use a commercial shuttle service when they were visiting and only 10% used a shuttle. Winter users were more likely to use a shuttle service (24%) compared to summer users (2%). Respondents fishing from a boat were by far the most likely to use a commercial shuttle service (60%)** compared to participants in other activities (< 12%).

- **The most popular location to visit was Oxbow Regional Park (57%), followed by Dodge Park (42%) and Dabney State Recreation Area (29%)**. In addition, 23% visited the stretch of river between Oxbow Regional Park and Dabney State Recreation Area, and 16% visited the stretch between Dodge Park and Oxbow Regional Park. **Winter recreationists were more likely to visit each location, especially between Oxbow Regional Park and Dabney State Recreation Area, and between Dodge Park and Oxbow Regional Park**.

- **The locations where respondents spent the most time were Oxbow Regional Park (36%) and Dodge Park (27%). Winter users were more likely than summer visitors to spend more time on the stretches of river between Oxbow Regional Park and Dabney State Recreation Area (21% vs. 6%), and between Dodge Park and Oxbow Regional Park (20% vs. 2%), whereas summer users spent more time at Dodge Park (36% vs. 12%) and Dabney State Recreation Area (16% vs. 7%)**.

- **The most common put-in location was Oxbow Regional Park (37%) followed by Dodge Park (31%). Winter recreationists (43%) were more likely than summer users (34%) to put-in at Oxbow Regional Park, whereas summer users (13%) were more likely than winter users (2%) to put-in at Dabney State Recreation Area**. Approximately 20% of respondents reported they did not boat, raft, or float on the river.

- **The most common take-out location was Dabney State Recreation Area (28%) followed by Oxbow Regional Park (26%) and Dodge Park (20%). Winter users (43%) were more likely than summer users (20%) to take-out at Dabney State Recreation Area, whereas summer users (28%) were more likely than winter users (5%) to take-out at Dodge Park**.

Perceptions of Experiences and Conditions

Overall Satisfaction. Respondents were asked "overall, how dissatisfied or satisfied are you with your visit to the Sandy River today?" Table 14 shows that overall satisfaction was extremely high, as 91% of respondents were satisfied and few (4%) were dissatisfied. In addition, the highest proportion of users was "very satisfied" (49%). Summer recreationists (55%) were more likely than winter users (38%) to feel "very satisfied." These results, however, are not surprising because overall satisfaction is almost always uniformly high in recreation areas with most studies reporting that more than 80% of recreationists are typically satisfied (Manning, 2011). High overall satisfaction does not mean that: (a) respondents are satisfied with every aspect of their experience, (b) there is nothing problematic with the setting or experience, and (c) there is no reason to make improvements. Instead, it is important to examine other aspects of the recreation setting and experience (e.g., safety, crowding, conflict) to inform management.

Table 14. Overall satisfaction with visit to the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Very satisfied	38	55	49
Satisfied	46	41	42
Neither dissatisfied nor satisfied	12	1	5
Dissatisfied	1	1	1
Very dissatisfied	3	3	3

[a] $\chi^2 = 37.71$, $p < .001$, $V = .25$.

Perceptions of Risk. One issue that can impact satisfaction is perception of safety and risk. The questionnaire asked respondents "to what extent did you feel at risk of any personal harm (e.g., accident, feel unsafe) on your visit to the Sandy River today?" Table 15 shows that 71% of respondents perceived no risk of personal harm at the river, 25% perceived slight risk, and 4% perceived moderate or extreme risk. There were no statistical differences in perceptions of risk between recreationists in the winter compared to those visiting in the summer.

In a follow up question, respondents were then asked "if you felt at risk of personal harm on this visit, what is the reason for this feeling?" Responses were open-ended and by far the most common reasons (in order of times mentioned) were: (a) drowning risk due to river current, high water, and rapids; (b) rocks, trees, and strainers in the river; (c) inexperienced river users and children; (d) weather (e.g., hypothermia, sunstroke); and (e) litter (e.g., glass, fish hooks).

Table 15. Perceptions of risk at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
No risk	73	70	71
Slight risk	23	27	25
Moderate risk	3	3	3
Extreme risk	1	1	1

[a] $\chi^2 = 1.09$, $p = .780$, $V = .04$.

Respondents were also asked in the questionnaire "how often have you seen other visitors drinking alcohol during any of your visits to the Sandy River?" Table 16 shows that only 28% of respondents never saw others drinking alcohol during their visits; 72% had witnessed this occurring at least once. In total, 25% reported seeing alcohol being consumed "once or twice," 26% saw this occurring "sometimes," and 21% reported seeing it happening "many times." Recreationists visiting in the winter (31%) were slightly more likely than those in the summer (26%) to report never seeing others drinking alcohol at the river, whereas summer users (25%) were more likely than winter recreationists (15%) to report seeing this happening "many times." Despite these proportions of respondents seeing others drinking alcohol during their visits, there were no significant correlations between this observation and perceptions of safety and risk in both winter ($r = .066$, $p = .352$) and summer ($r = .058$, $p = .273$).

Table 16. Alcohol consumption at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Never	31	26	28
Once or twice	28	24	25
Sometimes	26	25	26
Many times	15	25	21

[a] $\chi^2 = 7.79$, $p = .050$, $V = .11$.

Encounters, Crowding, Maximum Acceptance, and Use Levels. The questionnaire asked a series of questions measuring issues related to encounters and crowding. The concepts of reported encounters, perceived crowding, and norms (i.e., maximum acceptance or tolerance) have received considerable attention in the recreation literature (Manning, 2007, 2011; Shelby & Heberlein, 1986). *Reported encounters* describe a subjective count of the number of other people that an individual remembers observing in an area. *Perceived crowding* is a subjective and negative evaluation that this reported number of encounters or people observed in an area is

excessive (Shelby, Vaske, & Heberlein, 1989; Vaske & Shelby, 2008). Understanding recreationists' reported encounters and perceived crowding, however, may not reveal maximum acceptable or tolerable encounter levels, or an understanding of how use should be managed and monitored. *Norms* offer a theoretical and applied basis to help address these issues. Norms are standards that individuals use for evaluating activities, environments, or management strategies as good or bad, better or worse, and they help to clarify what people believe conditions should or should not be (Shelby, Vaske, & Donnelly, 1996). Research suggests that when users perceived an area to be crowded, they likely encountered more people than their maximum acceptance (i.e., their norm) for the particular setting (Needham, 2013; Vaske & Donnelly, 2002). Information on use levels, encounters, crowding, and norms can inform decisions related to social carrying capacities, which involve the level of use beyond which negative impacts occur to visitor opportunities and experiences (Manning, 2007, 2011; Shelby & Heberlein, 1986).

Reported encounters were measured with two sets of questions. First, respondents were asked to estimate the number of people they saw at the boat ramps (i.e., put-in and take-out areas), on the river, on the river banks, and in total on their visit. Second, respondents were asked how much time they were in sight of other people at each of these locations. Table 17 shows that respondents reported encountering an average of 17 people at the boat ramps (i.e., put-in and take-out areas), but 38% encountered fewer than 5 people and the majority (55%) encountered fewer than 10 people at these boat ramps. Average reported encounters at the boat ramps were significantly higher during the summer (M = 24) than winter (M = 8); 69% of winter recreationists reported encountering fewer than 10 people at the boat ramps, whereas only 43% of summer users encountered fewer than 10 people at the boat ramps.

Respondents reported encountering an average of 27 people on the river with 25% encountering 10 to 19 people and 31% encountering 20 to 49 people on the river. Average reported encounters on the river were significantly higher during the summer (M = 37) than winter (M = 10). In fact, the majority of winter users (53%) encountered fewer than 10 people on the river, whereas only 19% of summer visitors encountered fewer than 10 people on the river. The majority of summer visitors encountered 10 to 19 (24%) or 20 to 49 (38%) people on the river.

Reported encounters on the river banks averaged 29 people with 19% encountering 10 to 19 people and 27% encountering 20 to 49 people on the river banks. Encounters on the river banks, on average, were much higher in the summer (M = 42) than winter (M = 9). In winter, for

example, the majority (63%) of visitors encountered fewer than 10 people on the river banks. By comparison, only 15% of summer visitors encountered fewer than 10 people on the river banks with the majority (70%) of summer users encountering more than 20 people on the river banks.

Table 17. Reported encounters at different locations at the river [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 or t value	p value	V or r_{pb}
At the boat ramps (put-in and take-out)				73.20	< .001	.41
< 5 people	42	35	38			
5 – 9 people	27	8	17			
10 – 19 people	19	14	16			
20 – 49 people	13	20	17			
50 – 99 people	0	15	8			
100 or more people	0	7	4			
Median (middle number of people)	5	10	7			
Mean (average number of people)	8	24	17	6.57	< .001	.31
On the river				97.28	< .001	.43
< 5 people	34	10	19			
5 – 9 people	19	9	13			
10 – 19 people	26	24	25			
20 – 49 people	20	38	31			
50 – 99 people	1	12	8			
100 or more people	0	7	5			
Median (middle number of people)	8	20	15			
Mean (average number of people)	10	37	27	6.45	< .001	.23
On the river banks				195.47	< .001	.60
< 5 people	34	6	16			
5 – 9 people	29	9	16			
10 – 19 people	26	15	19			
20 – 49 people	11	37	27			
50 – 99 people	1	21	14			
100 or more people	0	12	8			
Median (middle number of people)	6	30	15			
Mean (average number of people)	9	42	29	12.84	< .001	.42
In total				117.12	< .001	.49
< 5 people	10	2	5			
5 – 9 people	16	5	9			
10 – 19 people	25	8	14			
20 – 49 people	36	28	31			
50 – 99 people	12	27	22			
100 or more people	1	29	19			
Median (middle number of people)	19	50	40			
Mean (average number of people)	24	88	65	8.89	< .001	.32

[a] Cell entries are percentages (%) unless specified as means (averages) or medians.

Taken together, respondents reported encountering an average of 65 people in total during their visit to the Sandy River with the largest proportions encountering 20 to 49 (31%) or 50 to 99 (22%) other people in total. Average total reported encounters were significantly higher in the summer (M = 88) than winter (M = 24). In fact, the majority of winter recreationists (61%) encountered a total of between 10 and 49 other people, whereas the majority of summer visitors (56%) reported encountering more than 50 people during their visit.

Table 18. Time in sight of other people at different locations at the river

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)	χ^2 value	p value	V
At the boat ramps (put-in and take-out)				54.57	< .001	.33
Never / rarely	26	22	24			
About 25% of the time	25	8	15			
About 50% of the time	17	8	11			
About 75% of the time	12	12	12			
Nearly all of the time	20	50	38			
On the river				118.11	< .001	.46
Never / rarely	28	10	17			
About 25% of the time	31	12	18			
About 50% of the time	21	13	16			
About 75% of the time	9	11	11			
Nearly all of the time	11	54	39			
On the river banks				127.86	< .001	.47
Never / rarely	23	9	14			
About 25% of the time	32	10	18			
About 50% of the time	20	10	14			
About 75% of the time	8	14	12			
Nearly all of the time	17	58	43			
In total				110.46	< .001	.45
Never / rarely	21	8	13			
About 25% of the time	26	8	14			
About 50% of the time	23	11	16			
About 75% of the time	14	16	16			
Nearly all of the time	16	57	42			

Respondents were then asked how much time they were in sight of other people during their visit. Table 18 shows that 38% of respondents reported being in sight of others at the boat ramps (i.e., put-in and take-out areas) "nearly all of the time," whereas 39% were in sight of others at the boat ramps either "25% of the time" or "never." A similar bimodal distribution (i.e., split pattern) was observed for time in sight of others on the river (39% "nearly all of the time," 35% "about 25% of the time" or "never") and on the river banks (43% "nearly all of the time," 32% "about 25% of the time" or "never"). In total, 42% of respondents reported being in sight of

other people "nearly all of the time" during their visit, 32% were in sight of others 50-75% of the time, and 27% were in sight of others "about 25% of the time" or "never." Recreationists visiting in the summer, however, were significantly more likely to report being in sight of other people much more often compared to those visiting in the winter. In fact, the majority of summer visitors reported being in sight of other people at the boat ramps (50%), on the river (54%), on the river banks (58%), and in total / overall on their visit (57%) "nearly all of the time." By comparison, the largest proportions of winter recreationists reported being in sight of other people at the boat ramps (51%), on the river (59%), on the river banks (55%), and in total / overall on their visit (47%) only "about 25% of the time" or "never."

The questionnaire also asked respondents "how important is it that you have opportunities for solitude away from other people on the Sandy River?" Table 19 shows that 64% of respondents considered *opportunities for solitude* at the river to be moderately (40%) or extremely (24%) important and only 11% believed this issue was not important. There was no significant difference between summer and winter recreationists in their importance of solitude.

Table 19. Importance of solitude at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Not important	7	13	11
Slightly important	21	27	25
Moderately important	40	40	40
Extremely important	33	19	24

[a] $\chi^2 = 18.05$, $p = .780$, $V = .17$.

Perceived crowding was measured using 9-point perceived crowding scale of 1 "not at all crowded" to 9 "extremely crowded." This scale has been used extensively and tested rigorously (Manning, 2007; Shelby et al., 1989; Vaske & Donnelly, 2002; Vaske & Shelby, 2008). Table 20 shows that average crowding on this scale ranged from 2.71 (boat ramps) to 3.07 (on the river banks) and was 3.04 overall on respondents' visits, suggesting that visitors felt "slightly crowded" on average. Average crowding was significantly lower in the winter (M = 2.29 to 2.43; in total = 2.43) compared to the summer (M = 2.97 to 3.49; in total = 3.38), with the highest average crowding on the river banks during the summer (M = 3.49).

In total, 49% of respondents felt crowded (3-9 on scale) during their visit to the Sandy River with the highest crowding (51%) on the river banks (Table 20). In addition, 43% felt crowded on the

river and the lowest crowding was at the boat ramps (41%). Crowding on this river is higher in the summer than winter. In total, 58% of summer visitors reported feeling crowded, whereas 35% of winter recreationists felt crowded. In particular, 45% of summer visitors felt crowded at the boat ramps compared to 33% of winter recreationists (Table 21). On the river itself, 50% of summer recreationists felt crowded compared to just 32% of winter users. The most substantial difference was on the river banks where 61% of summer visitors felt crowded compared to 33% of winter recreationists.

Table 20. Perceived crowding at different locations at the river [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 or t value	p value	V or r_{pb}
At the boat ramps (put-in and take-out)				12.14	.007	.16
Not crowded (1-2 on scale)	66	55	60			
Slightly crowded (3-4 on scale)	23	23	23			
Moderately crowded (5-7 on scale)	7	16	13			
Extremely crowded (8-9 on scale)	3	6	5			
Median (middle number on 9-point scale)	2	2	2			
Mean (average crowding on 9-point scale)	2.31	2.99	2.71	3.74	< .001	.16
On the river				16.78	.001	.18
Not crowded (1-2 on scale)	69	50	58			
Slightly crowded (3-4 on scale)	20	30	26			
Moderately crowded (5-7 on scale)	10	17	14			
Extremely crowded (8-9 on scale)	2	3	3			
Median (middle number on 9-point scale)	2	2	2			
Mean (average crowding on 9-point scale)	2.29	2.97	2.72	4.20	< .001	.18
On the river banks				48.74	< .001	.29
Not crowded (1-2 on scale)	68	39	49			
Slightly crowded (3-4 on scale)	21	32	28			
Moderately crowded (5-7 on scale)	11	25	20			
Extremely crowded (8-9 on scale)	1	4	3			
Median (middle number on 9-point scale)	2	3	3			
Mean (average crowding on 9-point scale)	2.31	3.49	3.07	7.55	< .001	.28
In total				31.38	< .001	.24
Not crowded (1-2 on scale)	66	42	51			
Slightly crowded (3-4 on scale)	22	30	27			
Moderately crowded (5-7 on scale)	10	24	19			
Extremely crowded (8-9 on scale)	3	4	3			
Median (middle number on 9-point scale)	2	3	2			
Mean (average crowding on 9-point scale)	2.43	3.38	3.04	5.75	< .001	.23

[a] Cell entries are percentages (%) unless specified as means (averages).

Based on the typology by Shelby et al. (1989) and Vaske and Shelby (2008), these results suggest that crowding conditions in winter at the boat ramps, on the river banks, and on the river

can be considered "suppressed crowding" where crowding problems do not exist and the area may offer unique low density experiences (Table 21). Conditions in the summer on the river and at the boat ramps can be considered "low normal" where major user access, displacement, and crowding problems are not likely to exist at this time and these areas may offer low-density experiences. Locations on the river banks in the summer, however, are "high normal" crowding areas where they have not exceeded their capacity, but are trending in that direction. The river and river bank areas, especially in the summer, should be monitored closely to see if increased use is expected, allowing management to anticipate future problems.

Table 21. Percent feeling crowded and average crowding scores at different locations at the river

	Percent (%) feeling crowded [a]	Average crowding [b]
High Normal: *Monitor if use increases are expected; anticipate problems*		
Summer on the river banks	61	3.49
Low Normal: *Unlikely a problem; may offer low density experiences*		
Summer on the river	50	2.97
Summer at the boat ramps	45	2.99
Suppressed: *No major problem; likely offers low-density experiences*		
Winter at the boat ramps	33	2.31
Winter on the river banks	33	2.31
Winter on the river	32	2.29

[a] Percent reporting 3 through 9 on the scale ("slightly," "moderately," or "extremely" crowded).
[b] Average crowding on 9-point scale.

To put these findings into perspective, Table 22 compares these crowding results to studies of crowding on other major rivers (Vaske & Shelby, 2008). Crowding on the Lower Sandy Wild and Scenic River in both summer and winter is lower than crowding on the Deschutes, McKenzie (lower and middle sections), Clackamas, and Rogue Rivers.

Respondents were also asked "how would you describe the overall number of people you saw on your visit to the Sandy River today?" Table 23 shows that the majority of respondents (54%) considered the current number of people to be "about right," whereas equal proportions considered the number to be low or too low (24%) and high or too high (24%). Summer visitors were slightly more likely (28%) than winter users (17%) to consider current visitation to be high or too high, whereas winter recreations (38%) were more likely than summer visitors (16%) to consider the current number of people to be low or too low.

Table 22. Comparison of crowding results to other major rivers [a]

Percent crowded [b]	River	Population or location
Greatly Overcapacity: *Manage for high densities; might be described as sacrifice site*		
100	Deschutes River, OR	Boaters on weekends
100	Kenai River, AK	Upper river bank anglers on high use days
97	Deschutes River, OR	Lower river boaters on weekends
95	Nantahala River, NC	On river
94	Colorado River, AZ	Anglers during high use period (Thanksgiving)
92	Kenai River, AK	Lower river powerboaters on high use days
90	Nantahala River, NC	At the boat ramp / put-in
88	Deschutes River, OR	Boaters on weekdays
85	McKenzie River, OR	Boaters on lower river
84	Gulkana River, AK	All users at Richardson Highway Bridge
81	Talkeetna River, AK	All users on entire river
Overcapacity: *Studies and management needed to preserve quality*		
79	Little Susitna River, AK	All users on entire river
76	Gun Powder River, MD	Trout anglers on opening day
75	Waimakariri and Rakaia Rivers, NZ	Salmon anglers
72	Colorado River, AZ	Rafters in Grand Canyon
72	Togiak River, AK	All users
70	McKenzie River, OR	Boaters on middle river
70	Clackamas River, OR	All users
69	Kanektok River, AK	Unguided floaters
68	Rogue River, OR	Rafters on the river
High Normal: *Monitor if use increases are expected; anticipate problems*		
65	Kenia River, AK	Lower river bank anglers on low use days
64	Talachulitna River, AK	All users
61	Wolf River, WI	Low water floaters
61	**Lower Sandy Wild & Scenic River, OR**	Summer users on river banks
60	Gulkana River, AK	All users on Sourdough Segment
58	**Lower Sandy Wild & Scenic River, OR**	All summer users
57	Colorado River, CO	Upper river boaters
53	Snake River, OR	Rafters in Hell's Canyon
51	Deshka River, AK	All users
Low Normal: *Unlikely a problem; may offer low density experiences*		
50	**Lower Sandy Wild & Scenic River, OR**	Summer users on the river
46	Kenai River, AK	Middle river powerboaters on low use days
45	**Lower Sandy Wild & Scenic River, OR**	Summer users at boat ramps
44	Delta River, AK	All users
43	Goodnews River, AK	All users
43	McKenzie River, OR	Boaters on upper river
38	Klamath River, CA	Floaters on river
Suppressed: *No major problem; likely offers low-density experiences*		
35	Upper Youghiogheny River, MD	All users
35	**Lower Sandy Wild & Scenic River, OR**	All winter users
33	Gulkana River, AK	All users on Middle Fork
33	Togiak River, AK	All users
33	**Lower Sandy Wild & Scenic River, OR**	Winter users at boat ramps and on river banks
32	**Lower Sandy Wild & Scenic River, OR**	Winter users on the river
26	Illinois River, OR	Rafters
20	Eagle River, AK	All rafters
16	White Salmon River, WA	All boaters

[a] Results reported in Vaske & Shelby (2008).

[b] Percent reporting 3 through 9 on the scale ("slightly," "moderately," or "extremely" crowded).

Table 23. Perceptions of number of people at the river [a]

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)
Too low	1	1	1
Low	37	15	23
About right	46	58	54
High	14	25	21
Too high	3	3	3

[a] $\chi^2 = 39.19$, $p < .001$, $V = .26$.

Encounter norms (i.e., *maximum acceptance*) were measured with two sets of questions. First, respondents were asked to report the maximum number of people they would accept seeing at one time at boat ramps, on the river, on the river banks, and in total on a visit. Second, respondents were asked to report the maximum amount of time they would accept being in sight of other people at each of these locations. Table 24 shows that respondents would accept seeing a maximum average of 21 people at the boat ramps (i.e., put-in and take-out areas) at one time with the largest proportions accepting no more than 10 to 19 (36%) or 20 to 49 people (22%). Average maximum acceptance at the boat ramps was significantly higher among summer visitors (M = 33) than winter users (M = 12) with the largest proportion of winter recreationists (47%) accepting no more than 10 to 19 people at the boat ramps and the largest proportion of summer users (37%) accepting no more than 20 to 49 people at the boat ramps.

Respondents would accept seeing a maximum average of 29 people on the river at one time with 25% accepting no more than 10 to 19 people and 33% accepting no more than 20 to 49 people on the river. Average maximum acceptance of people at one time on the river was significantly higher among summer recreationists (M = 37) than winter users (M = 20).

Maximum acceptance of seeing people on the river banks averaged 38 people with 21% accepting no more than 10 to 19 people and 33% accepting no more than 20 to 49 people on the river banks. Maximum acceptance of seeing people on the river banks, on average, was much higher among summer visitors (M = 52) compared to those visiting in the winter (M = 18).

Taken together, respondents would accept seeing a maximum of 69 people in total when visiting the Sandy River with the largest proportion accepting no more than 20 to 49 (35%) other people in total. Average maximum acceptance of people at one time was significantly higher among summer recreationists (M = 89) compared to winter users (M = 43).

Table 24. Maximum acceptable number of people at one time at different locations at the river [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 or t value	p value	V or r_{pb}
At the boat ramps (put-in and take-out)				55.50	< .001	.52
< 5 people	17	8	12			
5 – 9 people	26	10	18			
10 – 19 people	47	24	36			
20 – 49 people	8	37	22			
50 – 99 people	1	13	7			
100 or more people	2	10	6			
Median (middle number of people)	10	20	10			
Mean (average number of people)	12	33	21	4.34	< .001	.31
On the river				45.52	< .001	.41
< 5 people	11	2	6			
5 – 9 people	20	7	13			
10 – 19 people	34	18	25			
20 – 49 people	25	39	33			
50 – 99 people	5	24	16			
100 or more people	5	9	8			
Median (middle number of people)	10	25	20			
Mean (average number of people)	20	37	29	4.54	< .001	.27
On the river banks				73.77	< .001	.52
< 5 people	14	3	7			
5 – 9 people	24	5	13			
10 – 19 people	32	14	21			
20 – 49 people	24	39	33			
50 – 99 people	4	20	13			
100 or more people	3	20	13			
Median (middle number of people)	10	30	20			
Mean (average number of people)	18	52	38	6.54	< .001	.36
In total				32.46	< .001	.37
< 5 people	2	3	3			
5 – 9 people	5	2	3			
10 – 19 people	21	8	14			
20 – 49 people	46	27	35			
50 – 99 people	15	25	21			
100 or more people	11	36	25			
Median (middle number of people)	26	55	40			
Mean (average number of people)	43	89	69	3.80	< .001	.24

[a] Cell entries are percentages (%) unless specified as means (averages).

These norms could be used for establishing standards and improving quality experiences at this river. These standards could then be monitored to ensure they are not being violated and conditions and experiences are not deteriorating over time (Manning, 2011). In the winter, these standards could be set at encountering no more than approximately 20 other people at boat ramps, on the river, and on the river banks at one time, with no more than approximately 50

encounters with other people in total. In the summer, these standards could be set at encountering no more than approximately 50 other people at boat ramps, on the river, and on the river banks at one time, with no more than approximately 100 encounters with other people in total.

Table 25. Maximum acceptable time in sight of other people at different locations at the river

	Winter (%) (n = 214)	Summer (%) (n = 384)	All Users (%) (n = 598)	χ^2 value	p value	V
At the boat ramps (put-in and take-out)				17.54	.002	.24
Never / rarely	5	7	6			
About 25% of the time	32	17	23			
About 50% of the time	40	34	37			
About 75% of the time	14	16	15			
Nearly all of the time	10	25	19			
On the river				37.12	< .001	.33
Never / rarely	8	7	7			
About 25% of the time	38	17	25			
About 50% of the time	42	38	39			
About 75% of the time	10	20	16			
Nearly all of the time	3	19	12			
On the river banks				47.52	< .001	.36
Never / rarely	5	6	5			
About 25% of the time	37	15	24			
About 50% of the time	44	35	39			
About 75% of the time	11	24	18			
Nearly all of the time	3	21	14			
In total				42.78	< .001	.36
Never / rarely	5	5	5			
About 25% of the time	33	14	21			
About 50% of the time	50	37	42			
About 75% of the time	9	22	17			
Nearly all of the time	3	22	14			

Respondents were then asked to report the maximum amount of time they would accept being in sight of other people at each of these locations. Table 25 shows that 37% of respondents would accept being in sight of others at the boat ramps (i.e., put-in and take-out areas) no more than "50% of the time" and 23% would accept being in sight of others at the boat ramps no more than "25% of the time." Similar proportions were observed for maximum time in sight of others on the river (39% "about 50% the time," 25% "about 25% of the time") and river banks (39% "about 50% the time," 24% "about 25% of the time"). In total, 42% of respondents would accept being in sight of other people a maximum of "about 50% of the time" and 21% would accept being in sight of others no more than "about 25% of the time." Recreationists visiting in the summer, however, were significantly more likely to accept being in sight of other people more

often compared to those visiting in the winter. In total, for example, 44% of summer visitors would accept being in sight of others "about 75% of the time" or "nearly all of the time," whereas 50% of winter recreationists would accept being in sight of other people a maximum of "about 50% of the time."

To estimate whether there are potential social capacity related problems at a recreation site, it is important to examine relationships among encounters, maximum acceptance (i.e., norms), and crowding (Needham, 2013; Vaske & Donnelly, 2002). In particular, it is important to determine what proportion of users encountered more people than they would accept seeing at a site (i.e., their norm). Research has also shown that when recreationists encounter more people than they believe are acceptable, they feel more crowded compared to those who encounter fewer people than their maximum acceptance. If many users are encountering more people than they feel is acceptable, management attention and monitoring may be necessary (Manning, 2007, 2011).

Table 26. Relationships among number of people encountered, norms, and crowding at different locations at the river

	Reported number of encounters compared to norm [a]		Average crowding [b]				
	% Saw less than or equal to norm	% Saw more than norm	Saw less than or equal to norm	Saw more than norm	*t* value	*p* value	r_{pb}
Winter (*n* = 214)							
At the boat ramps	91	9	2.06	4.63	4.89	< .001	.46
On the river	81	19	2.04	4.12	4.10	< .001	.48
On the river banks	84	16	2.19	3.71	3.24	.002	.33
In total	74	26	2.01	4.05	5.27	< .001	.52
Summer (*n* = 384)							
At the boat ramps	71	29	2.62	5.47	3.61	< .001	.48
On the river	76	24	2.86	4.70	3.74	< .001	.39
On the river banks	66	34	3.35	5.41	5.32	< .001	.43
In total	65	35	3.28	5.43	5.30	< .001	.47
Total (*n* = 598)							
At the boat ramps	83	17	2.26	5.22	5.20	< .001	.51
On the river	78	22	2.49	4.48	5.53	< .001	.42
On the river banks	73	27	2.80	5.00	6.38	< .001	.44
In total	69	31	2.69	4.91	6.56	< .001	.49

[a] Percent of users who encountered either fewer than or more people than their norm (maximum acceptance).
[b] Average perceived crowding based on a 9-point scale from 1 "not at all crowded" to 9 "extremely crowded" where 3-4 is "slightly crowded" and 5-7 is "moderately crowded."

Table 26 shows relationships among encounters, maximum acceptance (i.e., norms), and crowding at each location (i.e., boat ramps, on river, on river banks, in total on visit) for each season (i.e., winter, summer). At all locations in both seasons, the majority (65% to 91%) of

respondents reported encountering fewer people than their maximum acceptance (i.e., normative tolerance). The largest proportions of users who encountered more people than their maximum acceptance were associated with summer visitor evaluations on the river banks (34%) and their overall trip (35%). Consistent with studies in other areas (e.g., Needham, 2013; Vaske & Donnelly, 2002), perceived crowding at all locations in both seasons was significantly higher for users who reported encountering more people than their maximum acceptance.

Table 27. Relationships among time in sight of other people, norms, and crowding at different locations at the river

	Reported time in sight of other people compared to norm [a]		Average crowding [b]				
	% time less than or equal to norm	% time more than norm	Time less than or equal to norm	Time more than norm	*t* value	*p* value	r_{pb}
Winter (*n* = 214)							
At the boat ramps	78	22	2.30	3.35	2.76	.007	.25
On the river	81	19	2.22	3.70	3.55	.001	.36
On the river banks	79	21	2.31	3.52	3.27	.001	.29
In total	76	24	2.24	4.15	5.08	< .001	.44
Summer (*n* = 384)							
At the boat ramps	63	37	2.81	4.22	3.16	.002	.28
On the river	49	51	2.66	3.91	4.05	< .001	.31
On the river banks	51	49	3.24	4.65	4.59	< .001	.32
In total	50	50	3.11	4.68	5.17	< .001	.37
Total (*n* = 598)							
At the boat ramps	70	30	2.54	3.92	4.47	< .001	.29
On the river	62	38	2.43	3.87	6.19	< .001	.36
On the river banks	63	37	2.79	4.41	6.23	< .001	.37
In total	60	40	2.67	4.55	7.89	< .001	.44

[a] Percent of users who spent more or less time in sight of other people compared to their norm (maximum acceptance).
[b] Average perceived crowding based on a 9-point scale from 1 "not at all crowded" to 9 "extremely crowded" where 3-4 is "slightly crowded" and 5-7 is "moderately crowded."

Table 27 shows relationships among time in sight of other people, maximum amount of time users would accept being in sight of other people (i.e., norm), and crowding at each location for each season. In the winter months, the majority (76% to 81%) of respondents reported spending less time in sight of other people than their maximum acceptance (i.e., normative tolerance) at all locations. In the summer, however, approximately half of respondents spent more time in sight of other people than their maximum acceptance (i.e., normative tolerance) on the river (51%) and river banks (49%), and during their overall trip (50%). In other words, maximum tolerance limits for time in sight of other visitors were being violated for approximately half of the summer visitors at all sites except the boat launches (i.e., put-in, take-out areas). Perceived crowding at

all locations in both seasons was significantly higher for users who reported spending more time in sight of other people than their maximum acceptance.

In addition to these data from the questionnaires, *use counts* were also conducted in both winter and summer of 2014. At sites along the Lower Sandy Wild and Scenic River, agency personnel were asked to manually count the number of vehicles they encountered during regular daily patrols. In addition, the Bureau of Land Management installed a camera to record images of vehicles and people at sites along the river. Field researchers from Oregon State University also manually counted vehicles on days when questionnaires were administered to visitors. In theory, these approaches taken together should have yielded a repeatable approach for generating reliable and representative use count data. However, caution must be exercised when interpreting the following use count estimates.[1] Despite some limitations, data on estimated use levels were developed based on vehicle counts conducted by: (a) the university field researchers at all sites (Dodge Park, Oxbow Regional Park, Dabney State Recreation Area) in both summer and winter, (b) agency personnel at Dabney State Recreation Area in winter, and (c) agency personnel at Oxbow Regional Park in winter. Estimates of numbers of people were calculated by multiplying vehicle counts by a factor of 4 (i.e., 4 people per vehicle), which is the standard metric used by the Oregon Parks and Recreation Department in its survey research and is also consistent with the average group size reported by users who responded to the questionnaire (M = 4.4; Table 8).

Table 28 shows that the estimated average daily use on the Lower Sandy Wild and Scenic River in winter is approximately 97 people on weekdays and 219 people on weekends and holidays. The lowest average weekday use in winter occurs at Dodge Park (M = 13 people per day) and the highest average weekday use in winter is at Oxbow Regional Park (M = 47 people per day). The lowest average daily weekend and holiday use in winter also occurs at Dodge Park (M = 32 people per day) and the highest estimated weekend and holiday use in winter is also at Oxbow Regional Park (M = 100 people per day).

[1] First, the camera was only installed by agency personnel in the winter, but not in the summer. In addition, this camera was positioned in only one location in each park (e.g., Dodge Park, Oxbow Regional Park), did not capture all use across each site, and the majority of images were unusable due to obstructions (e.g., wet lens from rain, tree branches in front of lens). Second, use counts were never conducted by agency personnel at Dodge Park, so only the use count information from the university field researchers can be used for Dodge Park. Third, use count data for the summer at Dabney State Recreation Area were never provided by agency personnel, so only the use count information from the university field researchers can be used for the summer at this park. Finally, the summer use count information provided by agency personnel at Oxbow Regional Park was inaccurate. Counts in the summer were extremely low (e.g., 0 to 5 vehicles) even on weekends and holidays when observations from the university field researchers recorded hundreds of vehicles at this park.

Visitation is much higher in the summer months. The estimated average daily use on this river in the summer is approximately 842 people on weekdays and 1798 people on weekends and holidays. The lowest average weekday use in the summer occurs at Dodge Park (*M* = 72 people per day) and the highest estimated average weekday use in the summer is at Dabney State Recreation Area (*M* = 413 people per day). The lowest average daily weekend and holiday use in summer also occurs at Dodge Park (*M* = 172 people per day), whereas the highest estimated daily use on weekends and holidays in the summer is at Oxbow Regional Park (*M* = 991 people per day). Across summer and winter seasons combined, the estimated average daily use on this river is approximately 469 people on weekdays and 1009 on weekends and holidays.

Table 28. Use count estimates at the river [a]

	Winter		Summer		Average per day	
	Vehicles	People	Vehicles	People	Vehicles	People
Dodge Park						
Average weekdays	3.17	13	18.00	72	10.59	42
Average weekends / holidays	8.08	32	43.00	172	25.54	102
Average per day	5.63	23	30.50	122	18.07	72
Oxbow Regional Park						
Average weekdays	11.71	47	89.20	357	50.46	202
Average weekends / holidays	25.06	100	247.75	991	136.41	546
Average per day	18.39	74	168.48	674	93.44	374
Dabney State Recreation Area						
Average weekdays	9.21	37	103.20	413	56.21	225
Average weekends / holidays	21.67	87	158.78	635	90.23	361
Average per day	15.44	62	130.99	524	73.22	293
Total across all sites combined						
Average weekdays	24.09	97	210.40	842	117.26	469
Average weekends / holidays	54.81	219	449.53	1798	252.18	1009
Average per day	39.46	159	329.97	1320	184.73	739

[a] Number of vehicles based on manual use counts. Number of people based on multiplying number of vehicles by 4 (i.e., 4 people per vehicle) based on Oregon Parks and Recreation Department's standard metric and the average (mean) reported group size of visitors (*M* = 4.4; Table 8). Treat these estimates with caution for the reasons discussed in footnote 1.

Table 29 compares these use count estimates to visitor responses to the questionnaire items measuring reported encounters (Table 17) and perceived crowding (Table 20). Use levels, encounters, and crowding were each categorized into low, medium, and high based on interquartile ranges. Average summer use levels at this river, for example, were low on days when up to 532 people visited the river and high on days when 1916 or more people visited. By comparison, low average use levels on winter days consisted of 56 or fewer visitors, whereas use

levels on winter days were high when 206 or more people visited. On winter days with low (up to 56 people per day) or moderate (112 people per day) use levels and also on summer days with low use levels (up to 532 people per day), average perceived crowding on the 9-point scale was 1 or 2 (i.e., "not at all crowded"). Even on the busiest (i.e., high use) winter days and also on summer days with moderate use levels, average crowding on this scale did not exceed 3 (i.e., "slightly crowded"). It was only on the busiest (i.e., high use) summer days when average crowding reached 5 (i.e., "moderately crowded"). This is consistent with results in Table 20 and discussed earlier showing that crowding at the Lower Sandy Wild and Scenic River is "high normal" in the summer and although it has not exceeded capacity, it is trending in that direction. Based on the results in Table 29, therefore, social capacity issues do not seem to be problematic in most cases on this river, except perhaps on the busiest summer days when the area is not yet exceeding capacity, but is trending in that direction. Managers, therefore, should monitor this river, especially in the summer, to ensure that: (a) daily use levels do not regularly exceed approximate social capacities of 500 vehicles and 2000 people (i.e., approximate average high use level in the summer), and (b) each visitor does not regularly encounter more than approximately 100 people during their visit (i.e., average high reported encounters in the summer). This figure for reported encounters is relatively consistent with the maximum acceptance of encountering people in summer (M = 89; Table 24).

Table 29. Comparisons among use counts, encounters, and crowding per day at the river [a]

	Winter	Summer	Average per day
Use level estimates per day [b]			
Low	56	532	294
Moderate	112	1250	681
High	206	1916	1061
Encounters with people per day [c]			
Low	9	25	15
Moderate	19	50	40
High	35	100	70
Crowding per day [d]			
Low	1	2	1
Moderate	2	3	2
High	3	5	4

[a] Low, moderate, and high based on interquartile range.

[b] Average number of people per day across all sites combined based on vehicle counts multiplied by 4.

[c] Average number of people in total seen by respondents on the visit when they were surveyed .

[d] Average perceived crowding in total on the visit when they were surveyed based on a 9-point scale from 1 "not at all crowded" to 9 "extremely crowded" where 3-4 is "slightly crowded" and 5-7 is "moderately crowded."

User Group Conflict. In addition to encounters and crowding, the questionnaire also asked a series of questions measuring issues related to conflict with activity groups at the river. Previous research has revealed several types of conflict that can occur between people participating in similar or different types of recreation activities (Graefe & Thapa, 2004; Manning, 2011). Most studies have examined *interpersonal* or *goal interference conflict* where the actual physical presence or behavior of an individual or group interferes with goals, expectations, or behavior of another individual or group (Vaske, Needham, & Cline, 2007). A kayaker, for example, may experience interpersonal conflict if he or she is cut off by or collides with a rafter.

Researchers have also introduced and explored the concept of *social values conflict* (Vaske, Donnelly, Wittmann, & Laidlaw, 1995; Vaske et al., 2007). This type of conflict occurs between groups who do not share similar opinions, norms, or values about an activity. Unlike interpersonal conflict, social values conflict can occur even when there is no direct physical contact or interaction among groups (Vaske et al., 2007). For example, although encounters with horseback riders may be rare in recreation settings such as parks and wilderness areas, recreationists may philosophically disagree about the appropriateness of such animals in these settings. A study of wildlife viewers and hunters showed that wildlife viewers did not witness many hunters or hunting behaviors (e.g., see animals be shot, hear shots fired) in a backcountry area because management regulations and rugged terrain and topography separated the two groups (Vaske et al., 1995). Regardless, wildlife viewers still reported conflict with hunters simply because of a conflict in values regarding the appropriateness of hunting in the area.

Understanding the extent and type of conflict is important for managing recreation settings because some management strategies may be effective for addressing one type of conflict, but not another. When problems stem from interpersonal conflict, for example, spatial zoning or temporal segregation of incompatible groups may be effective. When the source of conflict is a difference in social values, user information and education through the use of interpretation or orientation sessions may be needed (Graefe & Thapa, 2004). Managers need to understand the basis of user concerns and types of conflict occurring to develop strategies for managing conflict.

To differentiate social values and interpersonal conflict, studies have operationalized conflict by combining responses from two sets of questions asked in questionnaires of recreationists (Vaske et al., 1995). First, individuals indicate how frequently events or behaviors happened to them (e.g., people being rude or discourteous, passing too closely). Responses are coded as observed

(i.e., at least once) or did not observe the behavior (i.e., never saw). Second, users evaluate if they perceived each behavior to be a problem (i.e., no problem or problem). Combining the occurrence of observation variables with the corresponding perceived problem variables produces a conflict typology (Figure 2). Individuals who observed or did not observe a given behavior, but did not perceive it to be a problem are considered to have experienced no conflict (i.e., no social values or interpersonal conflict). Those who never saw the behavior, but believed that a problem existed are considered to be expressing social values conflict. Users who saw a behavior and believed it caused a problem are experiencing either interpersonal conflict or a combination of both interpersonal and social values conflicts (Vaske et al., 2007).

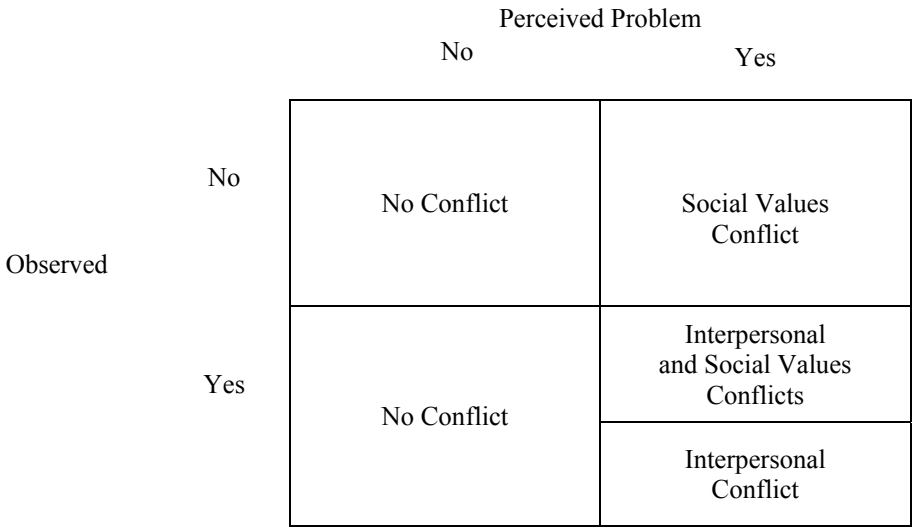

Figure 2. Conflict evaluation typology (Vaske et al., 2007)

Consistent with past research (e.g., Vaske et al., 1995, 2007), respondents were first asked how frequently they had observed three different behaviors (being rude or discourteous, not being aware of other people, being too close) caused by four different activity groups (anglers, rafters, kayakers / canoeists, tubers / floaters) *during any of their visits to the Sandy River*. Response categories were "never," "once or twice," "sometimes," and "many times." For analysis purposes and consistent with past research (Vaske et al., 1995, 2007), responses were recoded as "observed" (i.e., at least once) or "did not observe" the event (i.e., never saw behavior). Table 30 shows that that the most commonly reported conflict behaviors were anglers (i.e., people fishing) being too close (36%) and not being aware of other people (34%), and tubers / floaters not being aware of other people (34%). Observed conflict behaviors were significantly higher among winter users than summer visitors. Among winter users, for example, the majority of recreationists observed anglers being too close (61%), not being aware of other people (56%),

and being rude or discourteous (52%). Among summer users, almost 30% of visitors observed tubers and floaters not being aware of other people (29%), being rude or discourteous (28%), and being too close (28%).

Table 30. Observed activity group conflict behaviors [a]

Behavior observed	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	ϕ
Anglers (people fishing)						
being rude / discourteous	52	19	31	69.20	< .001	.35
not being aware of other people	56	21	34	74.05	< .001	.36
being too close	61	22	36	87.27	< .001	.39
Rafters						
being rude / discourteous	38	25	30	10.96	< .001	.14
not being aware of other people	39	28	32	7.77	.005	.12
being too close	41	25	31	14.71	< .001	.16
Kayakers / canoeists						
being rude / discourteous	29	12	18	23.64	< .001	.21
not being aware of other people	30	13	19	23.43	< .001	.21
being too close	32	14	20	24.46	< .001	.21
Tubers / floaters						
being rude / discourteous	41	28	32	12.07	.001	.15
not being aware of other people	42	29	34	9.45	.002	.13
being too close	40	28	32	10.08	.001	.14

[a] Cell entries are percentages (%) who observed the behavior at least once on their visits to the Sandy River.

Table 31. Perceived activity group problem behaviors [a]

Perceived problems	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	ϕ
Anglers (people fishing)						
being rude / discourteous	27	8	15	37.71	< .001	.26
not being aware of other people	29	9	16	37.82	< .001	.26
being too close	34	9	18	53.38	< .001	.31
Rafters						
being rude / discourteous	25	12	17	15.67	< .001	.17
not being aware of other people	28	13	18	17.04	< .001	.18
being too close	25	11	16	16.61	< .001	.18
Kayakers / canoeists						
being rude / discourteous	18	7	11	13.49	< .001	.16
not being aware of other people	20	8	12	17.20	< .001	.18
being too close	19	8	12	14.54	< .001	.16
Tubers / floaters						
being rude / discourteous	33	17	23	17.20	< .001	.18
not being aware of other people	36	18	24	23.97	< .001	.21
being too close	32	15	21	20.48	< .001	.20

[a] Cell entries are percentages (%) who perceived the behavior to be a problem at the Sandy River.

Respondents were then asked if they believed that each of these behaviors for each activity was a problem on the Sandy River. Responses were measured on a 4-point scale from 1 "not a problem" to 4 "extreme problem." For analysis purposes and consistent with past research (Vaske et al., 1995, 2007), variables were recoded into two categories ("no problem" or "problem"). Table 31 shows that the most problematic behaviors on the river were tubers and floaters not being aware of other people (24%), being rude or discourteous (23%), and being too close (21%). Problematic behaviors were reported significantly more often by winter users than summer visitors. Among winter users, for example, they perceived the greatest problems on the river were with tubers and floaters not being aware of other people (36%), being rude or discourteous (33%), and being too close (32%). In addition, 34% of winter users also perceived problems with anglers being too close.

Combining the frequency of occurrence (observed, not observed) variables with the corresponding perceived problem (no problem, problem) variables for each respondent produced conflict typologies with three possible attributes: (a) no conflict, (b) interpersonal conflict, and (c) social values conflict. This approach assumes that individuals witnessing a behavior and evaluating it as problematic experienced only interpersonal conflict and not social values conflict. Respondents in the interpersonal conflict cell (Figure 2), therefore, were classified further based on their agreement with the statements "just knowing that (activity group [e.g., anglers, rafters, kayakers / canoeists, tubers / floaters] are in the area bothers me even if I rarely see them here." Individuals who were initially identified as having interpersonal conflict, yet agreed with these statements were reclassified as having both interpersonal and social values conflicts. Respondents who disagreed with the statements were considered to be reporting only interpersonal conflict. This analysis strategy resulted in three behaviors (being rude or discourteous, not being aware of other people, being too close) caused by four different activity groups (anglers, rafters, kayakers / canoeists, tubers / floaters) where respondents were described as having either: (a) no conflict, (b) interpersonal conflict, (c) social values conflict, or (d) both interpersonal and social values conflict for each behavior. Cluster analyses were then conducted on these variables for each activity to obtain an overall view of the total proportion of respondents experiencing each type of conflict with each activity group.

Table 32 shows that across users visiting in both seasons, 24% of respondents experienced some conflict with tubers and floaters (76% no conflict), 19% experienced conflict with anglers (81% no conflict), 17% were in conflict with rafters (83% no conflict), and 12% experienced conflict

with kayakers and canoeists (88% no conflict). Almost all of the conflict experienced was interpersonal (i.e., direct contact) and few respondents reported social values conflict (i.e., differences in the appropriateness of the activity without direct contact). Conflict, however, was significantly higher among winter users than summer visitors. Among winter users, for example, 36% reported conflict with tubers and floaters during any of their visits to the Sandy River with most of this conflict being interpersonal (22%). In addition, 35% of winter users experienced conflict with anglers with most of this conflict also being interpersonal (25%). Among winter users, there was less conflict with rafters (26%) and kayakers and canoeists (19%). Among summer visitors, the greatest amount of conflict was with tubers and floaters, but only 17% of users were in conflict with these activity groups. There was minimal conflict with kayakers and canoeists (7%), anglers (8%), and rafters (11%) among summer users.

Table 32. Overall amount of each type of conflict for each activity [a]

Conflict with activity group	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	V
Anglers (people fishing)				60.16	< .001	.33
No conflict	65	91	81			
Interpersonal conflict	25	6	13			
Social values conflict	9	2	5			
Both social values & interpersonal conflict	1	1	1			
Rafters				18.29	< .001	.19
No conflict	74	89	83			
Interpersonal conflict	18	8	12			
Social values conflict	7	3	4			
Both social values & interpersonal conflict	1	0	1			
Kayakers / canoeists				21.60	< .001	.20
No conflict	81	93	88			
Interpersonal conflict	11	5	7			
Social values conflict	6	2	4			
Both social values & interpersonal conflict	2	0	1			
Tubers / floaters				23.29	< .001	.21
No conflict	64	83	76			
Interpersonal conflict	22	11	15			
Social values conflict	9	5	6			
Both social values & interpersonal conflict	5	1	3			

[a] Cell entries are percentages (%) who experienced each type of conflict with the activity group.

Future Visitation Based on Experiences and Conditions. Recreationists may cope with crowding and conflict by choosing to visit alternative locations or return to the same location at different times. The questionnaire measured three different possible coping behaviors: (a) temporal displacement (i.e., shift time of visit), (b) spatial displacement (i.e., shifts to other sites

within the same recreation area [intrasite] or to completely different recreation settings [intersite]), and (c) product shift (i.e., reevaluate and change the definition of the experience or setting). Respondents were asked "how likely would you take the following future actions based on what you experienced today?" Three items were used for measuring temporal displacement: (a) "come back to the Sandy River in a different season of the year," (b) "come back to the Sandy River on a different day of the week," and (c) "come back to the Sandy River at a different time of the day." Two items were used for measuring spatial displacement: (a) "visit other places / locations along the Sandy River instead" (i.e., intrasite), and (b) "visit other rivers instead" (i.e., intersite). One item was used for measuring product shift: "come back to the Sandy River, but change the way I think about this area, deciding it offers a different type of experience than I first believed." Finally, one item was used for measuring no behavior change: "make no changes to future visits to the Sandy River." Responses were measured on 5-point scales from 1 "very unlikely" to 5 "very likely." These variables are consistent with other studies measuring these coping behaviors (Hall & Shelby, 2000; Shelby, Bregenzer, & Johnson, 1988).

Table 33. Coping behaviors in response to experiences and conditions [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	ϕ
Make no changes to future visits to the Sandy River	56	58	57	0.39	.534	.03
Come back on a different day of the week	50	50	50	0.01	.962	.00
Visit other places / locations along the Sandy River instead	43	48	46	1.30	.254	.05
Come back at a different time of the day	41	47	45	1.69	.194	.06
Come back in a different season of the year	47	41	43	2.26	.133	.06
Visit other rivers instead	41	36	38	1.43	.232	.05
Come back, but change the way I think about this area, deciding it offers a different type of experience than I first believed.	29	28	28	0.12	.730	.02

[a] Cell entries are percentages (%) who reported they were likely or very likely to take the action.

Table 33 shows that the largest percentage of respondents (57%) would make no changes to their visits to the Sandy River in the future based on what they experienced at this river during their visit. Approximately half of the respondents would be temporally displaced by coming back on a different day of the week (50%), at a different time of day (45%), or in a different season of the year (43%). In addition, 46% of users would likely visit other places / locations along the Sandy River instead (i.e., intrasite spatial displacement) and 38% would visit other rivers instead (i.e., intersite spatial displacement). Respondents would be least likely to experience a product shift by changing the way they think about the area and deciding it offers a different type of experience

than they first anticipated (28%). There were no statistically significant differences between summer and winter visitors in likelihood of adopting these coping responses.

Section Summary. Taken together, results in this section showed:

- **Overall satisfaction was extremely high, as 91% of respondents were satisfied and few (4%) were dissatisfied. The highest proportion of users was "very satisfied" (49%)**. Summer visitors (55%) were more likely than winter users (38%) to be "very satisfied." These results, however, are not surprising because overall satisfaction is almost always uniformly high in recreation areas with most studies reporting that more than 80% of recreationists are satisfied. **High overall satisfaction does not mean that respondents are satisfied with every aspect of their experience, there is nothing problematic with the setting or experience, and there is no reason to make improvements. Instead, it is important to examine other aspects of the recreation setting and experience (e.g., safety, crowding, conflict) to inform management**.
- **In total, 71% of respondents perceived no risk of personal harm at the river, 25% perceived slight risk, and 4% perceived moderate or extreme risk**. There were no differences between winter and summer. The most common risks were river current, high water, and rapids; rocks and trees in the river; inexperienced users and children; weather (e.g., hypothermia, sunstroke); and litter (e.g., glass, fish hooks).
- **Only 28% of respondents never saw other users drinking alcohol during their visits; 72% witnessed this occurring at least once with 25% seeing alcohol being consumed "once or twice," 26% "sometimes," and 21% "many times."** Winter visitors (31%) were more likely than summer users (26%) to never see others drinking alcohol at the river, whereas **summer users (25%) were more likely to see this happening "many times."** Despite these proportions of respondents seeing others drinking alcohol on their visits, there were no significant correlations between this observation and perceptions of safety and risk in both winter (r = .066, p = .352) and summer (r = .058, p = .273).
- Respondents encountered an average of 17 people *at the boat ramps* (i.e., put-in and take-out areas), but 38% encountered fewer than 5 people and the majority (55%) saw fewer than 10 people at the boat ramps. Average reported encounters at the boat ramps were higher in the summer (M = 24) than winter (M = 8). Respondents encountered an average of 27 people *on the river* with 25% encountering 10 to 19 people and 31% encountering

20 to 49 people. Average reported encounters on the river were higher in the summer (*M* = 37) than winter (*M* = 10). Reported encounters *on the river banks* averaged 29 people with 19% encountering 10 to 19 people and 27% encountering 20 to 49 people. Encounters on the river banks were much higher in summer (*M* = 42) than winter (*M* = 9). **Overall, respondents encountered an average of 65 people in total on their visit with the largest proportions encountering 20 to 49 (31%) or 50 to 99 (22%) people. Total average encounters were higher in summer (*M* = 88) than winter (*M* = 24).**

- In total, 38% of respondents reported being in sight of others at the boat ramps "nearly all of the time," whereas 39% were in sight of others either "25% of the time" or "never." A similar split distribution was observed for time in sight of others on the river (39% "nearly all of the time," 35% "about 25% of the time" or "never") and river banks (43% "nearly all of the time," 32% "about 25% of the time" or "never"). **Overall, 42% of respondents reported being in sight of other people "nearly all of the time" during their visit, 32% were in sight of others 50-75% of the time, and 27% were in sight of others "about 25% of the time" or "never." Summer visitors were more likely than winter users to be in sight of other people more often**, as the majority of summer visitors reported being in sight of others at the boat ramps (50%), on the river (54%), on the river banks (58%), and in total / overall on their visit (57%) "nearly all of the time."

- **In total, 64% of respondents considered opportunities for solitude to be moderately (40%) or extremely (24%) important**. Only 11% believed this was not important. There was no difference between summer and winter users in the importance of solitude.

- On a 9-point scale from 1 "not at all crowded" to 9 "extremely crowded," **average crowding ranged from 2.71 (boat ramps) to 3.07 (on the river banks) and was 3.04 overall, suggesting visitors felt "slightly crowded" on average. Average crowding was significantly lower in the winter (*M* = 2.43) compared to the summer (*M* = 3.38), with the highest crowding on the river banks during the summer (*M* = 3.49).**

- **In total, 49% of respondents felt crowded (3-9 on scale) during their visit with the highest crowding (51%) on the river banks**. **In addition, 43% felt crowded on the river and the lowest crowding was at the boat ramps (41%). Crowding was higher in the summer than winter.** In total, 58% of summer visitors felt crowded, whereas 35% of winter recreationists felt crowded. In particular, 45% of summer visitors felt crowded at the boat ramps compared to 33% of winter users. On the river itself, 50% of summer

recreationists felt crowded compared to 32% of winter visitors. **The most substantial difference was on the river banks where 61% of summer visitors felt crowded compared to 33% of winter users. These results suggest that conditions in winter can be considered "suppressed crowding" where crowding problems do not exist and the area may offer unique low density experiences. Conditions in the summer on the river and at the boat ramps are "low normal" where major user access, displacement, and crowding problems are not likely to exist at this time, and these areas may offer low density experiences. Locations on the river banks in the summer are "high normal" crowding areas where they have not exceeded their capacity, but are trending in that direction. By comparison, however, crowding on the Lower Sandy Wild and Scenic River in both summer and winter is lower than crowding on many nearby rivers, including the Deschutes, McKenzie (lower, middle), Clackamas, and Rogue Rivers**.

- **The majority of respondents (54%) considered the current number of people at the river to be "about right,"** whereas equal proportions considered the number to be low or too low (24%) and high or too high (24%). **Summer visitors were slightly more likely (28%) than winter users (17%) to consider current visitation to be high or too high**.

- **Respondents would accept seeing a maximum average of 21 people at the *boat ramps* at one time** with the largest proportions accepting no more than 10 to 19 (36%) or 20 to 49 people (22%). **Maximum acceptance at the boat ramps was higher in the summer (*M* = 33) than winter (*M* = 12). Respondents would accept a maximum of 29 people *on the river* at one time** with 25% accepting no more than 10 to 19 people and 33% accepting no more than 20 to 49 people on the river. **Maximum acceptance of people at one time on the river was higher in the summer (*M* = 37) than winter (*M* = 20). Maximum acceptance of seeing people *on the river banks* averaged 38 people** with 21% accepting no more than 10 to 19 people and 33% accepting no more than 20 to 49 people. **Maximum acceptance of seeing people on the river banks was much higher among summer visitors (*M* = 52) than winter users (*M* = 18). Overall, respondents would accept seeing no more than 69 people in total when visiting the Sandy River** with the largest proportion accepting no more than 20 to 49 (35%) other people. **Average maximum acceptance of people at one time was significantly higher in summer (*M* = 89) than winter (*M* = 43)**.

- In total, 37% of respondents would accept being in sight of others at the boat ramps no more than "50% of the time" and 23% would accept being in sight of others at boat ramps no more than "25% of the time." Similar proportions were observed for maximum time in sight of others on the river (39% "about 50% the time," 25% "about 25% of the time") and river banks (39% "about 50% the time," 24% "about 25% of the time"). **In total, 42% of users would accept being in sight of other people "about 50% of the time" and 21% would accept being in sight of others no more than "about 25% of the time." Summer visitors, however, were more likely than winter users to accept being in sight of other people more often**.

- **At all locations (boat ramps, on river, on river banks) for each season (winter, summer), the majority (65% to 91%) of respondents encountered fewer people than their maximum acceptance (i.e., normative tolerance)**. The largest proportions of users who encountered more people than their maximum acceptance were associated with summer visitor evaluations on the river banks (34%) and their overall trip (35%).

- **In the winter, the majority (76% to 81%) of respondents spent less time in sight of other people than their maximum acceptance (i.e., normative tolerance) at all locations (boat ramps, on river, on river banks). In the summer, however, about half of respondents spent more time in sight of other people than their maximum acceptance on the river (51%) and river banks (49%), and during their overall trip (50%)**. In other words, maximum tolerance limits for time in sight of others were being violated for approximately half of summer visitors at all sites except boat launches.

- **The estimated average daily use on the Lower Sandy Wild and Scenic River in *winter* is approximately 97 people on weekdays and 219 people on weekends and holidays**. The lowest average weekday use in winter occurs at Dodge Park (M = 13 people per day) and the highest is at Oxbow Regional Park (M = 47 people per day). The lowest average daily weekend and holiday use in winter also occurs at Dodge Park (M = 32 people per day) and the highest is also at Oxbow Regional Park (M = 100 people per day). **Visitation is much higher in the summer. The estimated average daily use in the *summer* is approximately 842 people on weekdays and 1798 people on weekends and holidays**. The lowest average weekday use in the summer occurs at Dodge Park (M = 72 people per day) and the highest is at Dabney State Recreation Area (M = 413 people per day). The lowest average daily weekend and holiday use in summer also occurs at

Dodge Park (*M* = 172 people per day), whereas the highest is at Oxbow Regional Park (*M* = 991 people per day). **Across summer and winter seasons combined, the average daily use on this river is approximately 469 people on weekdays and 1009 on weekends and holidays**. These estimates, however, should be treated with caution due to methodological constraints.

- On winter days with low (up to 56 people per day) or moderate (112 people per day) use levels and also on summer days with low use levels (up to 532 people per day), average crowding was 1 or 2 on the 9-point scale (i.e., "not at all crowded"). **Even on the busiest (i.e., high use) winter days and on summer days with moderate use levels, average crowding did not exceed 3 (i.e., "slightly crowded"). It was only on the busiest (i.e., high use) summer days when average crowding reached 5 (i.e., "moderately crowded"). Social capacity issues, therefore, do not seem to be problematic in most cases on this river, except perhaps on the busiest summer days when the area is not yet exceeding capacity, but is trending in that direction**.

- The most commonly observed conflict behaviors reported by respondents were anglers (i.e., people fishing) being too close (36%) and not being aware of other people (34%), and tubers and floaters not being aware of other people (34%). **Observed conflict behaviors were more common among winter users than summer visitors. Among winter users, for example, the majority observed anglers being too close (61%), not being aware of other people (56%), and being rude or discourteous (52%). Among summer visitors, almost 30% observed tubers and floaters not being aware of other people (29%), being rude or discourteous (28%), and being too close (28%). Despite these observed behaviors, only 24% of respondents experienced conflict with tubers and floaters (76% no conflict), 19% experienced conflict with anglers (81% no conflict), 17% were in conflict with rafters (83% no conflict), and 12% experienced conflict with kayakers and canoeists (88% no conflict).** Almost all of this conflict was interpersonal (i.e., direct contact) and few reported social values conflict (i.e., differences in the appropriateness of the activity without direct contact). Conflict, however, was higher among winter users than summer visitors. Among winter users, 36% of recreationists reported conflict with tubers and floaters during any of their visits to this river with most of this conflict being interpersonal (22%). In addition, 35% of winter users experienced conflict with anglers with most of this also being interpersonal (25%).

Among summer visitors, the greatest amount of conflict was with tubers and floaters, but only 17% were in conflict with these activities.

- **In total, 57% of respondents would make no changes to their visits to the Sandy River in the future based on what they experienced**. Approximately half of respondents would be temporally displaced by coming back on a different day of the week (50%), at a different time of day (45%), or in a different season of the year (43%). In addition, 46% of users would visit other places along this river instead (i.e., intrasite spatial displacement) and 38% would visit other rivers instead (i.e., intersite spatial displacement). Respondents would be least likely to change the way they think about the area, deciding it offers a different experience than first believed (28%). There were no significant differences between summer and winter visitors in likelihood of adopting these responses in the future.

Support for Potential Management Strategies

Studies have highlighted the importance and need for understanding visitor support and opposition toward management strategies designed to mitigate negative effects of recreation at various sites (Manning, 2011; Manning & Anderson, 2012). There are two general categories of approaches for managing recreation (Manning, 2011). First, *direct* management strategies are regulations that act directly on user behavior leaving little or no freedom of choice. Second, *indirect* management strategies are more voluntary and attempt to influence the decision factors on which users base their behavior. To illustrate, direct management practices aimed at reducing litter could include a regulation prohibiting littering and then enforcing this regulation with fines or other sanctions. An indirect management practice would be an education program designed to inform users of undesirable ecological and aesthetic impacts of litter, and encourage them to avoid littering. The questionnaire asked respondents whether they supported or opposed 12 different direct and indirect management strategies.

Figure 3 and Table 34 both show that the only strategy that received support from the majority of respondents was providing more opportunities for solitude away from other people (50%). In addition, 45% of respondents supported doing more to inform people about rules and regulations, and appropriate visitor behavior. In total, 41% of users would also like to see improved river access points (including boat ramps) and more access points. Between 30% and 40% of respondents supported improving maintenance and upkeep of facilities (40%), providing more

parking (38%), and limiting the number of commercial operators, guides, and outfitters (31%). Only 23% of visitors supported increasing the presence of management personnel (e.g., park rangers) and zoning different activities to specific areas. The least supported strategy was to limit the number of people allowed per day (14%), which is not surprising given the relatively low encounters and crowding (discussed earlier). In fact, the strategies most opposed by users were limiting the number of people per day (55% oppose) and allocating different activities to specific areas (i.e., zoning; 40% oppose). Large proportions of respondents were somewhat neutral or neither supported nor opposed many of these strategies (31-48%).

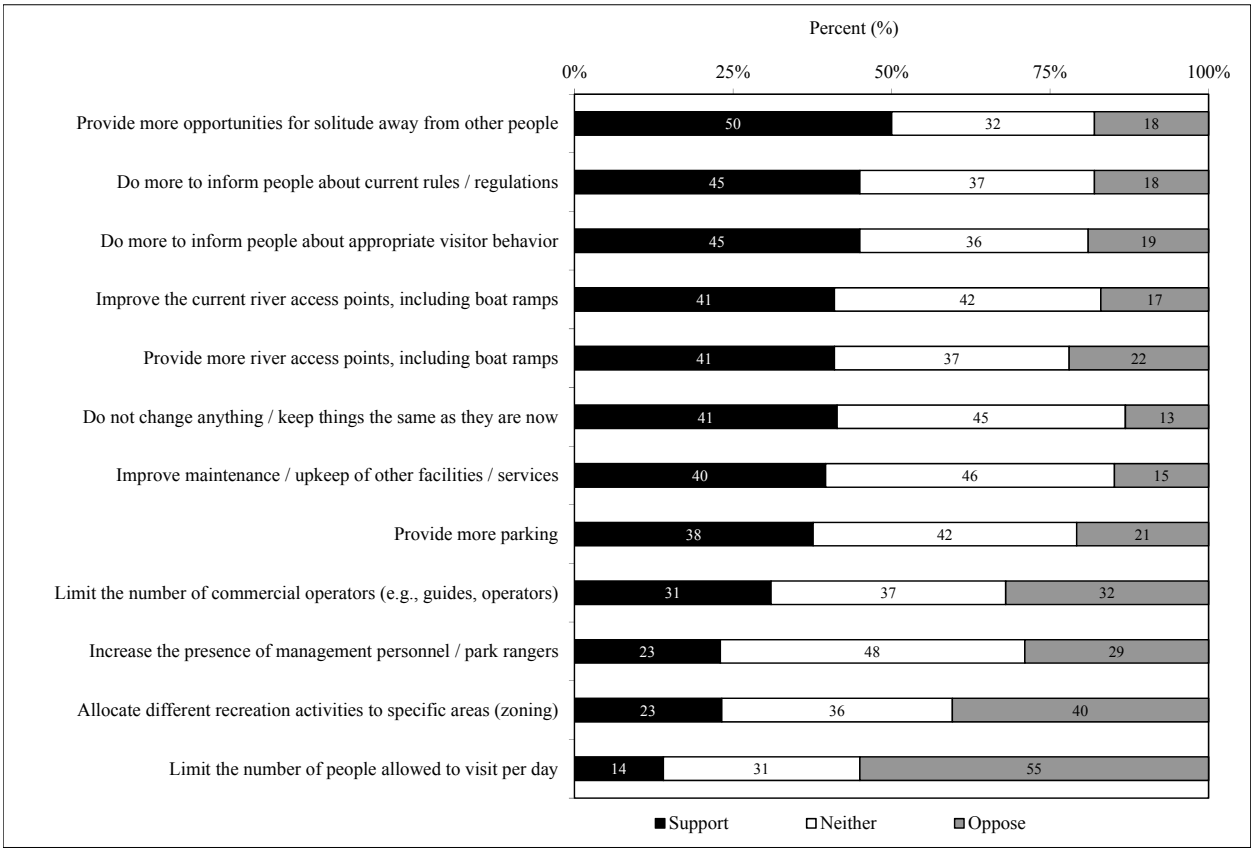

Figure 3. Overall support and opposition toward potential management strategies across all users

There were a few differences in support and opposition between winter and summer visitors (Table 34). Winter recreationists, for example, were more likely to support doing more to inform people about current rules and regulations (51% vs. 41%), whereas summer visitors were more supportive of providing more parking (42% vs. 29%) and zoning different recreation activities to specific areas (26% vs. 18%).

Table 34. Support for potential management strategies between winter and summer users [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 value	p value	ϕ
Provide more opportunities for solitude away from other people	47	51	50	1.13	.287	.05
Do more to inform people about current rules / regulations	51	41	45	5.45	.020	.10
Do more to inform people about appropriate visitor behavior	49	44	45	1.48	.224	.05
Improve the current river access points, including boat ramps	45	39	41	1.56	.212	.05
Provide more river access points, including boat ramps	40	42	41	0.14	.713	.02
Do not change anything / keep things the same as they are now	40	41	41	0.02	.886	.01
Improve maintenance / upkeep of other facilities / services	40	41	40	0.05	.816	.01
Provide more parking	29	42	38	9.44	.002	.13
Limit the number of commercial operators (e.g., guides, outfitters)	30	32	31	0.38	.536	.03
Increase the presence of management personnel / park rangers	25	22	23	0.45	.501	.03
Allocate different recreation activities to specific areas (zoning)	18	26	23	4.07	.044	.08
Limit the number of people allowed to visit per day	12	16	14	1.60	.206	.05

[a] Cell entries are percentages (%) who supported or strongly supported the strategy.

Section Summary. Taken together, results in this section showed:

- **The only potential management strategy that received support from the majority of visitors was providing more opportunities for solitude away from people (50%)**.
- **In total, 45% of respondents supported doing more to inform people about rules and regulations, and inform about appropriate visitor behavior.**
- **Among respondents, 41% would also like to see improved river access points (including boat ramps) and more access points.**
- **The least supported potential management strategy was to limit the number of people allowed per day (14%)**, which is not surprising given the relatively low encounter and crowding levels (discussed earlier).
- **Winter recreationists were more likely to support doing more to inform people about current rules / regulations (51% vs. 41%)**.
- **Summer visitors were more supportive of providing more parking (42% vs. 29%) and zoning different recreation activities to specific areas (26% vs. 18%)**.

Demographic Characteristics

Table 35 shows that 58% of respondents were male and 42% were female, but there was a large difference between winter and summer with winter recreationists dominated by males (88%), whereas there were slightly more females (59%) than males (41%) visiting in the summer. The average age of respondents was 38 years old. The largest proportions of respondents were 20 to 29 years old (26%) and 30 to 39 years old (32%). On average, winter recreationists were slightly older (M = 42 years old) than summer visitors (M = 35 years old) with more winter users (31%) than summer visitors (12%) over the age of 50, and more summer recreationists (36%) than winter users (22%) under the age of 30.

Table 35. Demographic characteristics of respondents [a]

	Winter (n = 214)	Summer (n = 384)	All Users (n = 598)	χ^2 or t value	p value	ϕ, V, or r_{pb}
Sex				133.68	< .001	.46
Male	88	41	58			
Female	12	59	42			
Age				41.43	< .001	.27
Under 20 years old [b]	3	6	5			
20 – 29 years old	19	30	26			
30 – 39 years old	28	33	32			
40 – 49 years old	19	19	19			
50 – 59 years old	15	9	11			
60 – 69 years old	13	3	7			
70 or older	3	0	1			
Average age (mean years)	42	35	38	5.74	< .001	.25

[a] Cell entries are percentages (%) unless specified as averages (means).
[b] Nobody under 18 years of age was allowed to be sampled due to university institutional review board (IRB) regulations on research involving human subjects.

Table 36 shows that almost all respondents resided in Oregon (89%) with small percentages of visitors from Washington State (6%), California (2%), and elsewhere (3%). The majority of respondents lived in Multnomah County (58%). An additional 22% of respondents resided in Clackamas County and 8% lived in Washington County. The largest percentage of respondents (43%) resided in Portland and nearby areas such as Gresham (12%) and Sandy (9%).

Table 36. Location of residence for respondents

	Winter (%) (*n* = 214)	Summer (%) (*n* = 384)	All Users (%) (*n* = 598)
State			
Oregon	87	90	89
Washington	7	4	6
California	3	2	2
Other	3	4	3
County			
Multnomah	46	64	58
Clackamas	22	21	22
Washington	12	5	8
Clark (WA)	3	2	2
King (WA)	2	1	1
Other	16	7	10
City / town			
Portland	36	47	43
Gresham	10	14	12
Sandy	5	11	9
Troutdale	3	3	3
Vancouver (WA)	3	3	3
Beaverton	3	2	2
Boring	1	3	2
Tigard	3	1	2
Happy Valley	2	1	2
Other	31	16	22

Section Summary. Taken together, results in this section showed:

- **In total, 58% of respondents were male and 42% were female**, but there was a large difference between winter and summer **with winter dominated by males (88%), whereas there were slightly more females (59%) than males (41%) in the summer**.
- **The average age of respondents was 38 years old. The largest proportions of users were 20 to 29 years old (26%) and 30 to 39 years old (32%). On average, winter users were slightly older (*M* = 42 years old) than summer visitors (*M* = 35 years old)**.
- **Almost all respondents resided in Oregon (89%)** with small percentages from Washington State (6%), California (2%), and elsewhere (3%). **The majority of visitors lived in Multnomah County (58%)**, an additional 22% resided in Clackamas County, and 8% lived in Washington County. **The largest percentages of respondents (43%) resided in Portland** and nearby areas such as Gresham (12%) and Sandy (9%).

RECOMMENDATIONS

Based on these findings from this survey of recreationists at the Lower Sandy Wild and Scenic River, the following recommendations, in no particular order, are made:

- Results showed substantial differences between winter and summer recreation use on the Lower Sandy Wild and Scenic River. There were major differences between seasons in user group activities (e.g., 79% fishing in winter vs. 75% swimming or tubing in summer), demographic characteristics (e.g., 88% males in winter vs. 59% females in summer), trip characteristics (e.g., average group size of 2.7 people in winter vs. 5.6 in summer), and visitor experiences (e.g., 35% felt crowded and 16% were in sight of other people nearly all of the time in winter vs. 58% felt crowded and 57% were in sight of other people nearly all of the time in summer). **These findings suggest that the different seasons provide substantially different recreation opportunities and experiences at this river. Management, therefore, should be tailored to be specific to context (e.g., season, location, user group) to preserve this diversity of recreation opportunities**.

- There is high repeat visitation, as 84% of respondents had previously visited the Lower Sandy Wild and Scenic River and almost half (49%) had visited more than 10 times before. In addition, use on this river is estimated at almost 1800 people per day on summer weekends and holidays, and more than 200 people per day on weekends and holidays in the winter. **It is clear that this river is important to the lives of many people and plays a pivotal role in the community through the provision of ecosystem services. If population trends continue diversifying and urbanizing, this river will likely play an even greater role in the community in the future, so it will be critical for managers to work closely with recreationists and the community in planning and management efforts, and disseminate information to users and the community**.

- Few recreationists surveyed in both winter (18%) and summer (3%) visited this river with a professional guide or commercial outfitter. At some major rivers, managing agencies often depend on guides and outfitters to convey safety and educational information to visitors. **At the Lower Sandy Wild and Scenic River, however, managers cannot depend on guides and outfitters to provide the majority of visitors with information and education, and instead need to ensure that other opportunities for up-to-date information are available to convey important messages (e.g., signs, brochures,**

internet website information, frequent ranger visits and interactions with visitors). Management should also protect non-outfitted opportunities, which are particularly important at this river.

- **Overall satisfaction among recreationists at the Lower Sandy Wild and Scenic River is high, as almost all (91%) were satisfied and the highest proportion was "very satisfied" (49%)**. Overall satisfaction, however, is almost always high in recreation areas with most studies reporting more than 80% of recreationists as satisfied. **High overall satisfaction does not mean that respondents are satisfied with every aspect of their experience, there is nothing problematic with the setting or experience, and there is no reason to make improvements. Instead, it is important to examine other aspects of the setting and experience (e.g., safety, crowding, conflict) to inform management**.

- In total, 42% of all respondents were within sight of other visitors "nearly all of the time." In the summer, 57% of respondents were within sight of others "nearly all of the time." These findings suggest a potential problem because having opportunities for solitude was moderately or extremely important to most visitors (64%). In addition, the only potential management strategy that received support from the majority of respondents, especially in the summer (51%), was providing visitors with more opportunities for solitude away from others. Few respondents (14%), however, supported limiting the number of people allowed per day. **Managers, therefore, may want to consider other strategies that would create opportunities for solitude and time away from seeing other people along the river (e.g., more river hiking trails, more secluded beaches). In addition, managers should consider informing and educating visitors about periods of high use and alternative times and sites along the river that may offer more opportunities for solitude**.

- Results showed that 72% of respondents reported alcohol being consumed by visitors at least once at the Lower Sandy Wild and Scenic River. In total, 25% saw alcohol being consumed "once or twice," 26% "sometimes," and 21% "many times." Summer visitors (25%) were more likely than winter users (15%) to see this happening "many times." **Given the reported safety risks at this river (e.g., river currents, potential for high water) and that alcohol is prohibited at some sites along this river (e.g., Oxbow Regional Park, Dodge Park), managers might consider additional education and enforcement**.

- Respondents supported the strategy of encouraging managers to do more to inform people about current rules and regulations (45%) and appropriate visitor behavior (45%) while visiting sites along the Lower Sandy Wild and Scenic River. **Signs, interactive displays, brochures, internet websites, computer and smartphone apps, QR codes, self-guided trails, videos, orientation sessions, and a variety of other methods are useful for disseminating information to outdoor recreationists. Frequent ranger patrols, interactions with visitors, and friendly enforcement may also be useful, especially during high use times, to provide more management presence and reduce potentially depreciative behaviors (e.g., alcohol use)**.

- This research estimated that visitor use levels along the Lower Sandy Wild and Scenic River, especially on summer weekends and holidays, can reach almost 1800 people per day. Despite these use levels, however, there was generally low crowding among visitors (49% felt crowded overall) in comparison to other major rivers in the Pacific Northwest (e.g., up to 100% crowded on the Deschutes River, 70% crowded on the Clackamas River). **Results along the Lower Sandy Wild and Scenic River suggest that conditions in the winter can be considered "suppressed crowding" where crowding problems do not exist and the area may offer unique low density experiences. In addition, conditions in the summer both on the river and at the boat ramps are "low normal" where access, displacement, and crowding problems are not likely to exist at this time and these areas may also offer low density experiences. Managers should consider ways to preserve this diversity of low density opportunities and experiences for this unique resource close to Oregon's largest metropolitan area. It is much easier to consider and establish capacities when use levels are low**.

- **Locations on the river banks (61% crowded) in the summer, however, are "high normal" areas that have not exceeded capacity, but are trending in that direction**. In the summer, approximately half of respondents also spent more time in sight of other people than their maximum tolerance on the river (51%), along the river banks (49%), and during their overall trip (50%). **As a result, the river and river bank areas in the summer should be monitored and studied closely to see if increased use is expected, allowing management to anticipate future problems proactively instead of reactively after problems occur**.

- Combining the crowding, encounter, and use level information showed that it was mainly on the busiest (i.e., high use) summer days along the Lower Sandy Wild and Scenic River when average crowding became "moderately crowded." **Managers should monitor this river, especially in the summer, to ensure that: (a) daily use levels do not regularly exceed approximately 500 vehicles and 2000 people (i.e., average high use level in the summer), and (b) each visitor does not regularly encounter more than approximately 100 people during their visit (i.e., average high reported encounters in summer)**. This figure for reported encounters is also relatively consistent with visitors' maximum normative acceptance of encounters with other people in summer (*M* = 89). **Given that this is a federally designated Wild and Scenic River, managers should identify capacities based on accurate scientific information, such as the data in this study, and monitor and manage (e.g., parking lot size restrictions, increased access fees, zoning) these capacities to ensure that conditions and experiences do not deteriorate**. Visitor norms can be useful for establishing standards, informing these capacities, and improving quality experiences. These standards can then be monitored to ensure they are not being violated and conditions and experiences are not deteriorating. Normative responses from respondents suggest that, in the winter, these standards could be set at encountering no more than approximately 20 other people at boat ramps, on the river, and on the river banks at one time, with no more than 50 encounters with other people in total. In the summer, these standards could be set at encountering no more than approximately 50 other people at boat ramps, on the river, and on the river banks at one time, with no more than approximately 100 encounters with other people in total.

- Although overall conflict with various activity groups visiting along the Lower Sandy Wild and Scenic River was quite low, there was evidence of some conflict among groups. Among winter users, for example, the majority observed anglers (i.e., people fishing) being too close (61%), not being aware of other people (56%), and being rude or discourteous (52%). In addition, 35% of winter recreationists experienced conflict with anglers on the river. These behaviors initiated interpersonal conflict (i.e., direct contact), so **there is a need to further examine issues associated with angler proximity, interactions, and behaviors when fishing, and even consider implementing guidelines associated with these issues. In the meantime, managers should increase monitoring of these issues and interact more frequently and consistently with**

anglers in the winter to understand their experiences and concerns to help to mitigate conflicts and improve user experiences.

- Overall, results from the survey generally suggest that most recreationists on the Lower Sandy Wild and Scenic River consider this to be a relatively mature river with reasonably stable management, use, and impacts. **Although monitoring is needed to watch for potential upward trends (e.g., use levels, crowding, conflict) at certain times of the year, current users do not seem to be overly distressed by existing use or conflicts, and are not widely supportive of implementing many new changes to existing management**. In addition, existing facilities seem capable of handling recreationist needs and existing demand. This river may not provide unique low density experiences at all times throughout the year, especially on busy days in the summer, but it does appear to offer some of these types of opportunities in winter and during low use days in the summer. **Capacities corresponding with access and parking options are likely to maintain conditions for high quality opportunities, at least for the near term**.

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APPENDIX A: QUESTIONNAIRE

Your Opinions about Conditions and Experiences on the Sandy River

We are conducting this survey to learn about your experiences on the Sandy River. Your input is important and it will assist managers. Participation is voluntary and responses are confidential. ***Please complete this survey and return it to the researcher***.

1. ***Before today***, had you ever visited the Sandy River before? **(check *ONE*)**
   - ☐ No
   - ☐ Yes → if yes, how many previous trips have you made to the Sandy River? **(write number)** _____ trip(s)

2. Please check ***all*** activities in which you are participating on your visit to the Sandy River ***today***. **(check *ALL THAT APPLY*)**
   - ☐ ***A***. Fishing from the river bank
   - ☐ ***B***. Fishing from a boat
   - ☐ ***C***. Rafting
   - ☐ ***D***. Kayaking
   - ☐ ***E***. Canoeing
   - ☐ ***F***. Tubing / floating
   - ☐ ***G***. Swimming
   - ☐ ***H***. Other (please specify) _____

3. From Question 2 above, what ***ONE primary activity*** are you participating in ***today***? **(write *ONE* letter)**
   Letter for ***today's*** primary activity _____

4. How would you rate your skill level in this primary activity? **(check *ONE*)**
   ☐ Beginner ☐ Novice ☐ Intermediate ☐ Advanced ☐ Expert

5. Which ***ONE*** of the following best describes your level of involvement in this primary activity? **(check *ONE*)**
   - ☐ This is an enjoyable, but infrequent activity that is incidental to my other outdoor interests. I am not highly skilled in this activity.
   - ☐ This activity is important to me, but is only one of the outdoor activities in which I participate. My participation in this activity is inconsistent and I consider myself to be moderately skilled in this activity.
   - ☐ This is my primary outdoor activity and I consider myself to be highly skilled in this activity. I participate in this activity every available chance I get.

6. Please check ***all*** places along the Sandy River that you visited ***today***. **(check *ALL THAT APPLY*)**
   - ☐ ***A***. Upriver from Dodge Park (e.g., Sandy River Park)
   - ☐ ***B***. Dodge Park
   - ☐ ***C***. Between Dodge Park and Oxbow Regional Park
   - ☐ ***D***. Oxbow Regional Park
   - ☐ ***E***. Between Oxbow Regional Park and Dabney State Park
   - ☐ ***F***. Dabney State Park
   - ☐ ***G***. Downriver from Dabney State Park (e.g., Lewis & Clark State Park, Glenn Otto Park)

7. From Question 6 above, what ***ONE area*** along the Sandy River did you spend the most time ***today***? **(write *ONE* letter)**
   Letter for where you spent the most time ***today*** _____

8. Please identify your primary ***put-in location*** on the Sandy River ***today***. **(check *ONE*)**
   - ☐ Sandy River Park
   - ☐ Dodge Park
   - ☐ Oxbow Regional Park
   - ☐ Dabney State Park
   - ☐ I did not boat, raft, or float on the river
   - ☐ Other (please specify) _____

9. Please identify your primary ***take-out location*** on the Sandy River ***today***. **(check *ONE*)**
   - ☐ Dodge Park
   - ☐ Oxbow Regional Park
   - ☐ Dabney State Park
   - ☐ Glenn Otto Park
   - ☐ Lewis & Clark State Park
   - ☐ Sandy River Delta
   - ☐ I did not boat, raft, or float on the river
   - ☐ Other (please specify) _____

10. Are you visiting with a professional guide / outfitter ***today***? **(check *ONE*)** ☐ No ☐ Yes ☐ I am a guide

11. Did you use a commercial shuttle service when visiting the Sandy River ***today***? **(check *ONE*)** ☐ No ☐ Yes

12. Overall, how dissatisfied or satisfied are you with your visit to the Sandy River ***today***? **(check *ONE*)**
☐ Very Dissatisfied ☐ Dissatisfied ☐ Neither ☐ Satisfied ☐ Very Satisfied

13. To what extent did you feel at risk of any personal harm (e.g., accident, feel unsafe) on your visit to the Sandy River ***today***?
☐ No Risk ☐ Slight Risk ☐ Moderate Risk ☐ Extreme Risk

14. If you felt at risk of personal harm on this visit, what is the reason for this feeling? **(write response)** _____

15. How important is it that you have opportunities for solitude away from other people on the Sandy River? **(check *ONE*)**
☐ Not Important ☐ Slightly Important ☐ Moderately Important ☐ Extremely Important

16. How would you describe the overall number of people you saw on your visit to the Sandy River ***today***? **(check *ONE*)**
☐ Too Low ☐ Low ☐ About Right ☐ High ☐ Too High

17. Please estimate the number of people you saw at each location on the Sandy River ***today***. **(write numbers)**
I saw about: _____ people at the boat ramps (put-in / take-out areas)
_____ people on the river
_____ people on the river banks
_____ people in total on my visit today

18. How crowded did you feel it was at each location on the Sandy River ***today***? **(circle number for *EACH*)**

How crowded did you feel it was …	Not at all Crowded							Extremely Crowded	
… at the boat ramps (put-in, take-out areas).	1	2	3	4	5	6	7	8	9
… on the river.	1	2	3	4	5	6	7	8	9
… on the river banks.	1	2	3	4	5	6	7	8	9
… overall on your visit today.	1	2	3	4	5	6	7	8	9

19. What is the maximum number of people you would accept seeing at one time at each location on the Sandy River? **(write numbers or check "it doesn't matter to me")**
It is OK to see a maximum of: _____ people at the boat ramps (put-in / take-out areas) *OR* ☐ It doesn't matter to me
_____ people on the river *OR* ☐ It doesn't matter to me
_____ people on the river banks *OR* ☐ It doesn't matter to me
_____ people in total on a visit *OR* ☐ It doesn't matter to me

20. How much of the time were you in sight of other people at each location on the Sandy River ***today***? **(circle number for *EACH*)**

	Never / Rarely	About 25% of the Time	About 50% of the Time	About 75% of the Time	Nearly All of the Time
At the boat ramps (put-in, take-out areas).	1	2	3	4	5
On the river.	1	2	3	4	5
On the river banks.	1	2	3	4	5
In total on your visit today.	1	2	3	4	5

21. What is the maximum amount of time you would accept being in sight of other people at each location on the Sandy River? **(circle number for *EACH* or check "it doesn't matter to me")**

	Never / Rarely	About 25% of the Time	About 50% of the Time	About 75% of the Time	Nearly All of the Time	It Doesn't Matter to Me
At the boat ramps (put-in, take-out).	1	2	3	4	5	☐
On the river.	1	2	3	4	5	☐
On the river banks.	1	2	3	4	5	☐
In total on a visit.	1	2	3	4	5	☐

22. To what extent have you seen or experienced any conflict with each of the following activity groups during ***any of your visits*** to the Sandy River? **(circle number for *EACH*)**

How much conflict with …	No Conflict		Slight Conflict		Moderate Conflict			Extreme Conflict	
… anglers (people fishing).	1	2	3	4	5	6	7	8	9
… rafters.	1	2	3	4	5	6	7	8	9
… kayakers / canoeists.	1	2	3	4	5	6	7	8	9
… tubers / floaters.	1	2	3	4	5	6	7	8	9

23. How often ***have you seen*** each of the following during ***any of your visits*** to the Sandy River? **(circle number for *EACH*)**

	Never	Once or Twice	Sometimes	Many Times
Anglers (people fishing) being rude or discourteous.	1	2	3	4
Anglers (people fishing) not being aware of other people.	1	2	3	4
Anglers (people fishing) being too close.	1	2	3	4
Rafters being rude or discourteous.	1	2	3	4
Rafters not being aware of other people.	1	2	3	4
Rafters being too close.	1	2	3	4
Kayakers / canoeists being rude or discourteous.	1	2	3	4
Kayakers / canoeists not being aware of other people.	1	2	3	4
Kayakers / canoeists being too close.	1	2	3	4
Tubers / floaters being rude or discourteous.	1	2	3	4
Tubers / floaters not being aware of other people.	1	2	3	4
Tubers / floaters being too close.	1	2	3	4

24. To what extent do you feel that each of the following is ***a problem*** on the Sandy River? **(circle number for *EACH*)**

	Not a Problem	Slight Problem	Moderate Problem	Extreme Problem
Anglers (people fishing) being rude or discourteous.	1	2	3	4
Anglers (people fishing) not being aware of other people.	1	2	3	4
Anglers (people fishing) being too close.	1	2	3	4
Rafters being rude or discourteous.	1	2	3	4
Rafters not being aware of other people.	1	2	3	4
Rafters being too close.	1	2	3	4
Kayakers / canoeists being rude or discourteous.	1	2	3	4
Kayakers / canoeists not being aware of other people.	1	2	3	4
Kayakers / canoeists being too close.	1	2	3	4
Tubers / floaters being rude or discourteous.	1	2	3	4
Tubers / floaters not being aware of other people.	1	2	3	4
Tubers / floaters being too close.	1	2	3	4

25. To what extent do you disagree or agree with each of the following statements? **(circle number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Just knowing that ***anglers (people fishing)*** visit the Sandy River bothers me, even if I rarely see them here.	1	2	3	4	5
Just knowing that ***rafters*** visit the Sandy River bothers me, even if I rarely see them here.	1	2	3	4	5
Just knowing that ***kayakers / canoeists*** visit the Sandy River bothers me, even if I rarely see them here.	1	2	3	4	5
Just knowing that ***tubers / floaters*** visit the Sandy River bothers me, even if I rarely see them here.	1	2	3	4	5

26. How often have you seen other visitors drinking alcohol during ***any of your visits*** to the Sandy River? **(check *ONE*)**

☐ Never ☐ Once or Twice ☐ Sometimes ☐ Many Times

27. How likely would you take the following future actions based on what you experienced ***today***? **(circle number for *EACH*)**

	Very Unlikely	Unlikely	Neither	Likely	Very Likely
Come back to the Sandy River, but change the way I think about this area, deciding it offers a different type of experience than I first believed.	1	2	3	4	5
Come back to the Sandy River in a different season of the year.	1	2	3	4	5
Come back to the Sandy River on a different day of the week.	1	2	3	4	5
Come back to the Sandy River at a different time of the day.	1	2	3	4	5
Visit other places / locations along the Sandy River instead.	1	2	3	4	5
Visit other rivers instead.	1	2	3	4	5
Make no changes to future visits to the Sandy River.	1	2	3	4	5

28. Do you oppose or support the following possible management actions for the Sandy River? **(circle number for *EACH*)**

	Strongly Oppose	Oppose	Neither	Support	Strongly Support
Provide more opportunities for solitude away from other people.	1	2	3	4	5
Limit the number of people allowed to visit per day.	1	2	3	4	5
Limit the number of commercial operators (e.g., guides, outfitters).	1	2	3	4	5
Allocate different recreation activities to specific areas (zoning).	1	2	3	4	5
Do more to inform people about appropriate visitor behavior.	1	2	3	4	5
Do more to inform people about current rules / regulations.	1	2	3	4	5
Provide more parking.	1	2	3	4	5
Provide more river access points, including boat ramps.	1	2	3	4	5
Improve the current river access points, including boat ramps.	1	2	3	4	5
Improve maintenance / upkeep of other facilities / services.	1	2	3	4	5
Increase the presence of management personnel / park rangers.	1	2	3	4	5
Do not change anything / keep things the same as they are now.	1	2	3	4	5

29. ***Including yourself***, how many people are accompanying you on the Sandy River ***today***? **(write number)** _____ person(s)

30. Are you: **(check *ONE*)** ☐ Male ☐ Female

31. What is your age? **(write age)** _____ years old

32. Where do you live? **(write responses)** City / town _____ County _____ State _____

Thank you, your input is important! ***Please return this survey to the researcher immediately.***

APPENDIX B: UNCOLLAPSED TOTAL PERCENTAGES

Your Opinions about Conditions and Experiences on the Sandy River

We are conducting this survey to learn about your experiences on the Sandy River. Your input is important and it will assist managers. Participation is voluntary and responses are confidential. ***Please complete this survey and return it to the researcher***.

1. ***Before today***, had you ever visited the Sandy River before? **(check *ONE*)**
   16% No
   87% Yes → if yes, how many previous trips have you made to the Sandy River? **(write number)** see Table 7 trip(s)

2. Please check ***all*** activities in which you are participating on your visit to the Sandy River ***today***. **(check *ALL THAT APPLY*)**
   33% ***A***. Fishing from the river bank
   17% ***B***. Fishing from a boat
   19% ***C***. Rafting
   9% ***D***. Kayaking
   4% ***E***. Canoeing
   30% ***F***. Tubing / floating
   62% ***G***. Swimming
   25% ***H***. Other (please specify) see Table 2

3. From Question 2 above, what ***ONE primary activity*** are you participating in ***today***? **(write *ONE* letter)**
   Letter for ***today's*** primary activity see Table 3

4. How would you rate your skill level in this primary activity? **(check *ONE*)**
   5% Beginner 12% Novice 34% Intermediate 30% Advanced 20% Expert

5. Which ***ONE*** of the following best describes your level of involvement in this primary activity? **(check *ONE*)**
   20% This is an enjoyable, but infrequent activity that is incidental to my other outdoor interests. I am not highly skilled in this activity.
   44% This activity is important to me, but is only one of the outdoor activities in which I participate. My participation in this activity is inconsistent and I consider myself to be moderately skilled in this activity.
   36% This is my primary outdoor activity and I consider myself to be highly skilled in this activity. I participate in this activity every available chance I get.

6. Please check ***all*** places along the Sandy River that you visited ***today***. **(check *ALL THAT APPLY*)**
   15% ***A***. Upriver from Dodge Park (e.g., Sandy River Park)
   42% ***B***. Dodge Park
   16% ***C***. Between Dodge Park and Oxbow Regional Park
   57% ***D***. Oxbow Regional Park
   23% ***E***. Between Oxbow Regional Park and Dabney State Park
   29% ***F***. Dabney State Park
   10% ***G***. Downriver from Dabney State Park (e.g., Lewis & Clark State Park, Glenn Otto Park)

7. From Question 6 above, what ***ONE area*** along the Sandy River did you spend the most time ***today***? **(write *ONE* letter)**
   Letter for where you spent the most time ***today*** see Table 11

8. Please identify your primary ***put-in location*** on the Sandy River ***today***. **(check *ONE*)**
   2% Sandy River Park
   31% Dodge Park
   37% Oxbow Regional Park
   9% Dabney State Park
   20% I did not boat, raft, or float on the river
   2% Other (please specify) _____

9. Please identify your primary ***take-out location*** on the Sandy River ***today***. **(check *ONE*)**
   20% Dodge Park
   26% Oxbow Regional Park
   28% Dabney State Park
   1% Glenn Otto Park
   2% Lewis & Clark State Park
   1% Sandy River Delta
   23% I did not boat, raft, or float on the river
   0% Other (please specify) _____

10. Are you visiting with a professional guide / outfitter ***today***? **(check *ONE*)** 89% No 8% Yes 3% I am a guide

11. Did you use a commercial shuttle service when visiting the Sandy River ***today***? **(check *ONE*)** 90% No 10% Yes

12. Overall, how dissatisfied or satisfied are you with your visit to the Sandy River ***today***? **(check *ONE*)**
3% Very Dissatisfied 1% Dissatisfied 5% Neither 42% Satisfied 49% Very Satisfied

13. To what extent did you feel at risk of any personal harm (e.g., accident, feel unsafe) on your visit to the Sandy River ***today***?
71% No Risk 25% Slight Risk 3% Moderate Risk 1% Extreme Risk

14. If you felt at risk of personal harm on this visit, what is the reason for this feeling? **(write response)** see report text

15. How important is it that you have opportunities for solitude away from other people on the Sandy River? **(check *ONE*)**
11% Not Important 25% Slightly Important 40% Moderately Important 24% Extremely Important

16. How would you describe the overall number of people you saw on your visit to the Sandy River ***today***? **(check *ONE*)**
1% Too Low 23% Low 54% About Right 21% High 3% Too High

17. Please estimate the number of people you saw at each location on the Sandy River ***today***. **(write numbers)**

I saw about:
see Table 17 people at the boat ramps (put-in / take-out areas)
see Table 17 people on the river
see Table 17 people on the river banks
see Table 17 people in total on my visit today

18. How crowded did you feel it was at each location on the Sandy River ***today***? **(circle number for *EACH*)**

How crowded did you feel it was …	Not at all Crowded		Slightly Crowded		Moderately Crowded			Extremely Crowded	
… at the boat ramps (put-in, take-out areas).	38%	21%	15%	8%	5%	6%	2%	3%	2%
… on the river.	32	26	17	9	6	6	2	2	2
… on the river banks.	28	22	17	11	8	7	5	2	1
… overall on your visit today.	26	25	16	11	9	7	4	2	1

19. What is the maximum number of people you would accept seeing at one time at each location on the Sandy River? **(write numbers or check "it doesn't matter to me")**

It is OK to see a maximum of:
see Table 23 people at the boat ramps (put-in / take-out areas) *OR* 53% It doesn't matter to me
see Table 23 people on the river *OR* 47% It doesn't matter to me
see Table 23 people on the river banks *OR* 47% It doesn't matter to me
see Table 23 people in total on a visit *OR* 49% It doesn't matter to me

20. How much of the time were you in sight of other people at each location on the Sandy River ***today***? **(circle number for *EACH*)**

	Never / Rarely	About 25% of the Time	About 50% of the Time	About 75% of the Time	Nearly All of the Time
At the boat ramps (put-in, take-out areas).	24%	15%	11%	12%	38%
On the river.	17	18	16	11	39
On the river banks.	14	18	14	12	43
In total on your visit today.	13	14	16	16	42

21. What is the maximum amount of time you would accept being in sight of other people at each location on the Sandy River? **(circle number for *EACH* or check "it doesn't matter to me")**

	Never / Rarely	About 25% of the Time	About 50% of the Time	About 75% of the Time	Nearly All of the Time	It Doesn't Matter to Me
At the boat ramps (put-in, take-out).	6%	23%	37%	15%	19%	42%
On the river.	7	25	39	16	12	39
On the river banks.	5	24	39	18	14	40
In total on a visit.	5	21	42	17	14	39

22. To what extent have you seen or experienced any conflict with each of the following activity groups during ***any of your visits*** to the Sandy River? **(circle number for *EACH*)**

How much conflict with …	No Conflict		Slight Conflict		Moderate Conflict			Extreme Conflict	
… anglers (people fishing).	82%	8%	5%	2%	2%	1%	0%	0%	0%
… rafters.	85	7	3	2	1	1	0	1	0
… kayakers / canoeists.	87	7	2	1	1	1	0	1	0
… tubers / floaters.	81	8	4	3	2	1	1	1	1

23. How often ***have you seen*** each of the following during ***any of your visits*** to the Sandy River? **(circle number for *EACH*)**

	Never	Once or Twice	Sometimes	Many Times
Anglers (people fishing) being rude or discourteous.	69%	20%	8%	3%
Anglers (people fishing) not being aware of other people.	66	19	11	3
Anglers (people fishing) being too close.	64	20	12	4
Rafters being rude or discourteous.	71	17	9	4
Rafters not being aware of other people.	68	18	10	5
Rafters being too close.	69	18	8	4
Kayakers / canoeists being rude or discourteous.	82	13	4	2
Kayakers / canoeists not being aware of other people.	81	13	4	2
Kayakers / canoeists being too close.	80	13	6	2
Tubers / floaters being rude or discourteous.	68	15	12	5
Tubers / floaters not being aware of other people.	66	16	12	6
Tubers / floaters being too close.	68	16	11	5

24. To what extent do you feel that each of the following is ***a problem*** on the Sandy River? **(circle number for *EACH*)**

	Not a Problem	Slight Problem	Moderate Problem	Extreme Problem
Anglers (people fishing) being rude or discourteous.	85%	11%	2%	2%
Anglers (people fishing) not being aware of other people.	84	11	3	2
Anglers (people fishing) being too close.	82	13	4	2
Rafters being rude or discourteous.	83	12	4	1
Rafters not being aware of other people.	82	12	5	1
Rafters being too close.	84	11	5	1
Kayakers / canoeists being rude or discourteous.	89	8	3	1
Kayakers / canoeists not being aware of other people.	88	8	4	1
Kayakers / canoeists being too close.	88	8	3	1
Tubers / floaters being rude or discourteous.	77	13	8	2
Tubers / floaters not being aware of other people.	76	14	7	3
Tubers / floaters being too close.	79	12	7	3

25. To what extent do you disagree or agree with each of the following statements? **(circle number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Just knowing that ***anglers (people fishing)*** visit the Sandy River bothers me, even if I rarely see them here.	75%	14%	9%	1%	1%
Just knowing that ***rafters*** visit the Sandy River bothers me, even if I rarely see them here.	75	14	10	1	1
Just knowing that ***kayakers / canoeists*** visit the Sandy River bothers me, even if I rarely see them here.	77	13	9	1	1
Just knowing that ***tubers / floaters*** visit the Sandy River bothers me, even if I rarely see them here.	74	13	10	2	1

26. How often have you seen other visitors drinking alcohol during ***any of your visits*** to the Sandy River? **(check *ONE*)**

28% Never 25% Once or Twice 26% Sometimes 21% Many Times

27. How likely would you take the following future actions based on what you experienced ***today***? **(circle number for *EACH*)**

	Very Unlikely	Unlikely	Neither	Likely	Very Likely
Come back to the Sandy River, but change the way I think about this area, deciding it offers a different type of experience than I first believed.	35%	12%	25%	13%	15%
Come back to the Sandy River in a different season of the year.	26	9	22	21	22
Come back to the Sandy River on a different day of the week.	22	7	21	25	25
Come back to the Sandy River at a different time of the day.	23	8	24	22	23
Visit other places / locations along the Sandy River instead.	24	7	23	26	20
Visit other rivers instead.	25	10	27	23	16
Make no changes to future visits to the Sandy River.	14	6	22	22	36

28. Do you oppose or support the following possible management actions for the Sandy River? **(circle number for *EACH*)**

	Strongly Oppose	Oppose	Neither	Support	Strongly Support
Provide more opportunities for solitude away from other people.	11%	7%	32%	33%	17%
Limit the number of people allowed to visit per day.	31	24	31	10	4
Limit the number of commercial operators (e.g., guides, outfitters).	18	14	37	20	11
Allocate different recreation activities to specific areas (zoning).	23	17	36	18	6
Do more to inform people about appropriate visitor behavior.	10	9	36	33	13
Do more to inform people about current rules / regulations.	10	8	37	33	12
Provide more parking.	9	12	42	24	14
Provide more river access points, including boat ramps.	10	12	37	26	16
Improve the current river access points, including boat ramps.	8	9	42	26	15
Improve maintenance / upkeep of other facilities / services.	8	7	46	30	10
Increase the presence of management personnel / park rangers.	17	12	48	18	5
Do not change anything / keep things the same as they are now.	8	5	45	24	17

29. ***Including yourself***, how many people are accompanying you on the Sandy River ***today***? **(write number)** see Table 8 person(s)

30. Are you: **(check *ONE*)** 58% Male 42% Female

31. What is your age? **(write age)** see Table 34 years old

32. Where do you live? **(write responses)** City / town see Table 35 County see Table 35 State see Table 35

Thank you, your input is important! ***Please return this survey to the researcher immediately.***