

Appendix B
Yale Lake Survey Results

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Lewis River Hydroelectric Projects
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Prepared by:
EDAW, Inc.

Prepared for:
PacifiCorp
Cowlitz PUD

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YALE LAKE SURVEY RESULTS

This document details both user count data and visitor survey results obtained from the Yale Projects from 1996 and 1997. This information was previously presented as a section of the Final Technical Report for Recreation Resources (Section 3.0), and has been extracted specifically for use in this analysis. As a result, section, table, and figure numbers remain in their original format that was consistent with the FTR as a whole.

Study Objectives

The overall objectives of the various surveys are to answer key questions identified in the previous watershed scoping process. This data will be used to assess the types, levels, and distribution of use per location and over time, as well as the attitudes and characteristics of visitors to the study area.

Study Area

The study area can be defined as the upper Lewis River Basin (focusing on the project reservoirs). The study area for the surveys included developed recreation sites adjacent to Yale Lake. User counts were also documented at all developed recreation areas adjacent to the project reservoirs, as well as on the surface of the project reservoirs.

Methods

3.2.2.1 Recreation User Count Observations Methodology

Overall recreation visitation was first assessed at the 3 PacifiCorp reservoirs on the Lewis River: Lake Merwin, Yale Lake, and Swift Reservoir. Developed recreation facility use at these 3 reservoirs were analyzed in a broader sense to provide context to the Yale Lake recreation experience. Campground host counts and vehicle count data collected at PacifiCorp counters from 1994 through 1997 were used in this effort. Campground host counts were used to assess annual, weekday, weekend, and holiday occupancy levels at PacifiCorp campgrounds. A conversion factor was used to estimate total numbers of people at campgrounds and day-use areas based on vehicle counts. Seasonal and annual visitation were analyzed over this 4-year period.

A more detailed analysis was then conducted for the Yale Lake study area. Estimates of recreation use at day-use areas, campgrounds, and dispersed use areas were calculated based on vehicle and boat counts, camp host counts, activity observations, and professional judgment. These estimates were calculated for: (1) the peak recreation use season (Memorial Day weekend to Labor Day weekend) in 1996, and Memorial Day in 1997, and (2) the non-peak season or “shoulder season” (September 1996 and May 1997). A separate creel survey was conducted by Harza and is summarized in this FTR. Detailed methodology, study area, and results of the creel survey are presented in a separate FTR for Aquatic Resources (PacifiCorp 1997b). The Yale Lake survey was conducted in the study area identified in Section 3.1.

Specific components of the recreation user count observations methodology are presented below. These include campground user counts, vehicle user counts, total visitor estimates, lake boater counts, other recreation activity and use area counts, and the separate creel survey.

Lewis River Projects - Facility Occupancy and Total Visitor Estimates

Data on use of campgrounds and day-use areas at Lake Merwin, Yale Lake, and Swift Reservoir were collected by PacifiCorp from 1994 through 1997. This information is used to provide context for the Yale Lake recreation experience. Two sources of data are collected: (1) campground host counts from information presented on the campground registration forms and end-of-the-day tallies, and (2) counts from vehicle counters positioned at the entry roads of all PacifiCorp developed recreation facilities.

Campground host data were used to estimate campground occupancy levels at specific period of time. Data from vehicle counters were used to estimate total annual and seasonal (peak and non-peak) visitation at all campground and day-use areas. Percent occupancy is considered a key indicator of demand levels (e.g., a 90 percent occupancy rate would indicate a high level of demand; a 15 percent occupancy rate would indicate low demand).

Data on vehicle use of PacifiCorp's Lewis River facilities were collected for typical weekend, typical weekday, peak holiday weekends, and non-peak season periods of time. Automated vehicle counters (i.e., buried loop counters) were used to record vehicles entering and exiting the developed facilities. PacifiCorp staff (either maintenance crew staff or the campground hosts) were responsible for reading the automated counters on a predetermined schedule (e.g., before and after weekends; before and after holidays), and data were hand tabulated for later analysis. The total number of visitors was estimated by dividing the number of counted vehicles by 2 to determine the number of actual visits (i.e., to compensate for a given vehicle both entering and exiting the site; also, counters can distinguish between single vehicles and vehicles with trailers), then multiplying by a vehicle occupancy factor of 3.4 to estimate the number of visitors (the 3.4 factor is a National Park Service estimate of the average number of persons per vehicle).

Yale Lake Peak Period Boater Counts

The lake boater counts were conducted to determine the level of watercraft use on the reservoir during peak use periods, as well as identify where on the lake different types of watercraft concentrate. Five lake boater counts were conducted while on the reservoir in a boat during the peak recreation season of 1996. Counts were conducted on the following dates:

- June 2 (non-holiday weekend)
- July 6 (July 4th holiday weekend)
- July 21 (non-holiday weekend)
- August 18 (non-holiday weekend)
- August 31 (Labor Day holiday weekend)

Methods consisted of observing and counting all water craft using Yale Lake, as well as shoreline dispersed camping and day-use sites, from a PacifiCorp boat. Launching from Yale Park, the boat followed the shoreline perimeter of the entire lake, while observers recorded water craft and shoreline use. Surveys typically lasted 2 to 3 hours to record use on the entire lake. Data recorded for the lake boater use counts included weather; time; type and number of water craft (e.g., power boat, sail boat, jet ski, inflatables); and number of boat and bank anglers. Data were recorded on standardized forms. In addition, observers noted concentrations of use associated with particular areas, and recorded these areas on a map of Yale Lake. Additional boat counts were conducted from the shoreline; the methodology is discussed below.

Yale Lake - Recreation Activity and Use Area Counts

Peak Season - Peak season surveys (May 25 to September 2, 1996 and May 24, 1997) consisted of detailed recreation user counts by vehicle/foot at PacifiCorp's developed facilities (Saddle Dam, Yale Park, Cougar Park and Camp, and Beaver Bay), as well as drive-in or boat-in dispersed use areas and sites (East Lewis River bridge crossing and the bypass reach, Swift No. 2 power canal, IP Road/Siouxon Creek bridge area, Speelyai Canal area, and coves/points near Yale Dam and Saddle Dam areas). Predetermined stops, survey routes, and protocols were established to ensure sampling consistency and coverage. At each stop, visitors, boats, and/or vehicles using the study area were counted, with data recorded on project-specific data forms. Each non-campground area or site was visited 3 times daily (morning, mid-day, and late afternoon or early evening) during a 10-hour survey period. Campgrounds were surveyed once during a survey period to reduce disturbance to visitors.

During the peak season, 1 weekend day was surveyed each week plus 5 holiday days (3- Memorial Day [1996-2, 1997-1], 2- Labor Day, and 1- July 4th) totaling 19 days (excluding 5 boater surveys). The number of persons participating in identified activities was recorded on standardized forms and included locations surveyed, time, sites occupied, weather, non-power boats, power boats (angler, non-angler), anglers (boat, bank), parked vehicles, dispersed day users, dispersed campers, trail users, swimmers, sunbathers, bikers, picnickers, and group site users.

Dispersed boat-in sites (day use and overnight) are more difficult to count, especially along the eastern shoreline. As part of the relicensing studies, PacifiCorp conducted surveys by boat to: (1) perform a 1-day inventory of dispersed sites along the entire shoreline; and (2) collect 5 use counts during peak season weekend days. These included 1 count each for Memorial Day weekend and Labor Day weekend, and 1 typical weekend count each in June, July, and August. Weekday use at the Yale Project is minimal and was therefore estimated. These 5 boat counts will help prepare shoreline management recommendations as well as characterize and estimate existing lake use outside of the developed sites.

Recreation user count forms and vehicle counts for the peak season surveys were compiled, with count data entered into a personal computer database using Microsoft Access. Data were cross-tabulated by activity type, date, day of week (weekend versus

weekday), location, time of day, and weather. These data were analyzed to characterize existing visitor use by location, timeframe, and weather conditions. Results were used to determine activity demand projections and to estimate future occupancy levels at identified sites. Total visitation during the peak season was estimated using these counts by applying average daily and weekend use factors for each month.

Non-Peak Season - Surveys during the non-peak season were conducted in September 1996 (2 weekend days after Labor Day weekend) to May 1997 (1 weekend day before Memorial Day weekend). One survey day on May 24, 1997 was shifted from the non-peak to peak season categories due to weather and logistics. The fall season effort (2 days) identified use occurring during mid to late September. Beaver Bay Campground was open, Saddle Dam, Cougar Park and Camp were closed, and Yale Park was open (year round). The spring season effort (1 day) identified use occurring during the early fishing season (prior to Memorial Day weekend). Minimal use of the Yale Project occurs from mid-September to mid-May, except for short day-use stops at Yale Park during good weather conditions.

These surveys occurred during weekend days by vehicle/foot. No boat surveys were conducted during this period. The survey route included developed sites that were open and drive-in dispersed sites and use areas (bypass reach, Swift No. 2 power canal, Siouxon Creek bridge, and Speelyai Canal). The same general user count survey protocol was followed as during the peak season survey period, but fewer sites were covered due to facility closures.

Yale Lake Visitation Estimate - Total annual and seasonal visitation at Yale Lake is estimated based upon vehicle counts averaged from 1994 to 1997 and application of a conversion factor of 3.4 persons per vehicle for developed facilities. The peak season is defined as Memorial Day weekend to Labor Day weekend. For dispersed use, estimates are made by season based on professional judgment and knowledge of the area, uses, and level of activity by season. Activities considered for the dispersed use estimate include trail use, hunting, and bank angling. No vehicle count data exist for these activities.

Yale Lake - Creel Survey

In conjunction with aquatic studies, an angler creel survey was conducted by Harza Northwest as part of the relicensing studies. The 1-year creel survey included boat and bank anglers. The survey began on April 1, 1996 and was completed on March 31, 1997. During this 1-year period, surveyors conducted sampling on 75 days (morning, afternoon, or both). The species of gamefish caught (kokanee, cutthroat trout, and rainbow trout) were noted. Additional information collected includes: how long it took to catch a fish (catch rate), where the fish were caught, how the fish were caught (boat and bank), length of the fish, time of day caught, and date. Results are presented in the FTR for Aquatic Resources (PacifiCorp 1997b) and are briefly summarized in this FTR.

3.2.2.2 Visitor Attitudes and Preferences Survey Methodology

Visitor attitudes and preferences were estimated by distributing a recreation survey or questionnaire to visitors at the 5 Yale Lake developed facilities. This survey was conducted to document attitudes and perceptions concerning the quality of the recreation experience and conflicts encountered in the study area. Several survey techniques are available for use including mail surveys, verbal contact surveys, and others. Due to the volume of visitor use and the need for an efficient cost-effective survey, a windshield/drop box survey with mail-in option was selected.

The survey document was tested and revised based on initial visitor responses. A test survey was conducted during 1 day prior to Memorial Day weekend 1996 so that the survey questions would not change during the course of the survey effort.

Survey forms were placed on visitors' vehicle windshields or picnic tables and/or handed to visitors directly (1 per family). When possible, visitors or family groups were approached and encouraged to complete the survey form at that time. Nearby drop boxes were conveniently placed and clearly signed at each site surveyed. Survey respondents could also take the survey with them and complete it at their leisure, mailing it to PacifiCorp at a later date.

Survey forms were distributed at the 5 developed sites only (when open) whenever user counts were taken. A total of 19 peak season days and 3 non-peak season days were surveyed. Forms were collected daily from the drop boxes at the survey sites or via mail. Group reservation sites received 1 survey form per group visit.

Each respondent (day-use site and campground visitor) was asked to complete a general section of the questionnaire. Because campground and day-use visitors were mixed at each site and because the sites were close to one another (except Yale Park), 1 survey form was used for both day-use and camper groups. To ensure that a recreationist/group was interviewed only once during the survey period, they were asked if they had been previously surveyed. If so, the survey would end at that point.

A total of 3,150 survey forms were distributed to Yale Lake visitors in 1996-1997. Out of this total, 801 survey forms were returned by the cut-off date of June 4, 1997 for a return rate of 25 percent. After review of each of these survey forms for completeness, 776 (25 percent) were deemed complete enough for entering into a relational database. The total number of survey forms (776) entered into the database is above the minimum 200-300 survey forms needed for a statistically valid sample size. As presented in [Figure 3.2-1](#), over 600 forms were distributed each to Beaver Bay Campground, Cougar Camp, Saddle Dam Campground and Day-use Site, and Yale Park. Fewer survey forms (200) were distributed at Cougar Park due to lower use levels at this facility. Response rates at each of the 5 sites varied, with Beaver Bay Campground and Cougar Park having the highest return rate (26 to 36 percent).

To facilitate data analysis, open-ended responses to questions were assigned to categories and entered into a database. After entry, tests were run to validate the data and any

unusual data values were cross-checked against the original survey forms and corrected as needed.

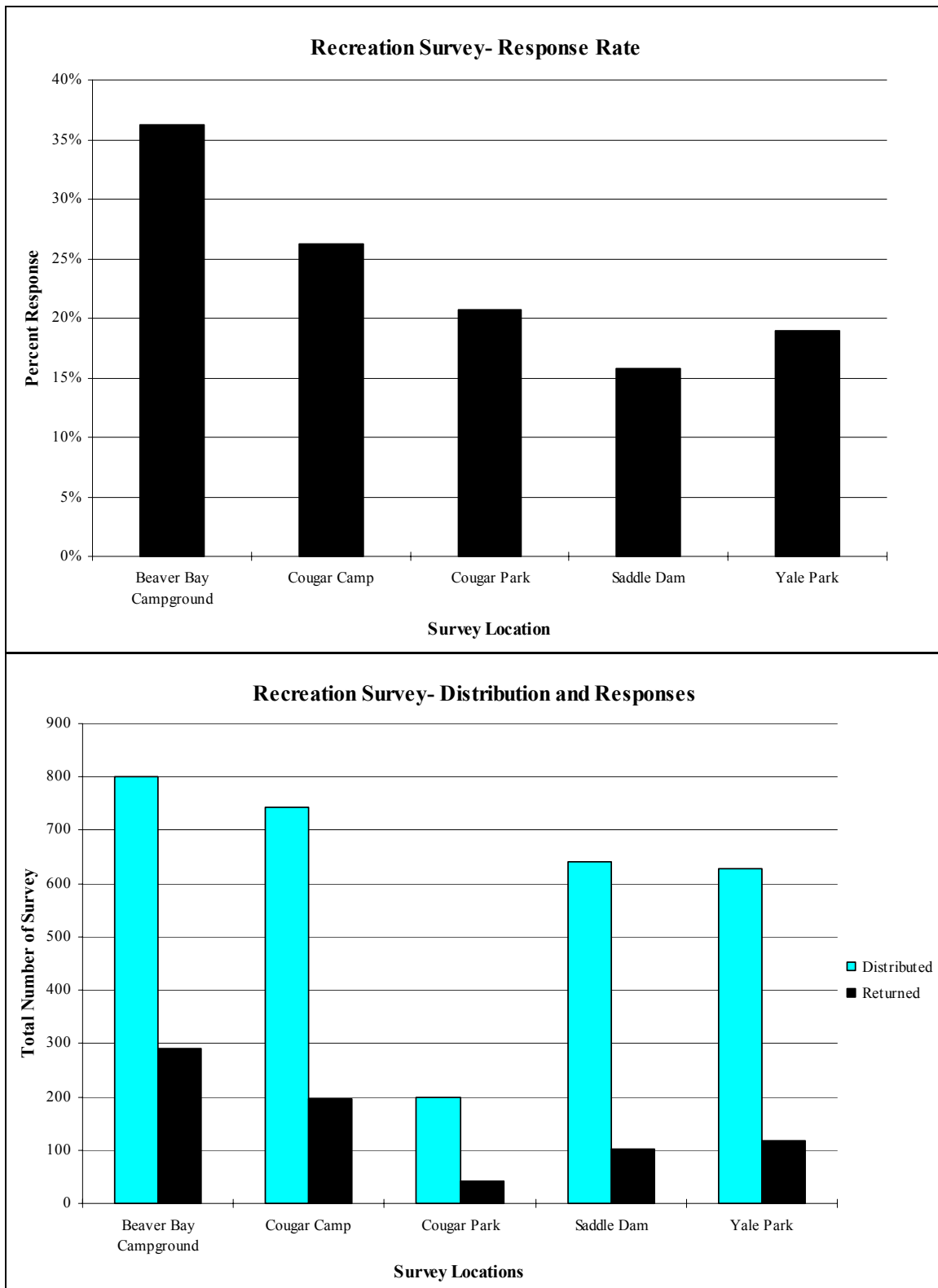


Figure 3.2-1. Recreation survey distribution and responses by survey location.

This section details both user count data and visitor survey results obtained from the Yale Project from 1996 and 1997.

3.3.1 Recreation Studies – User Counts for the Yale Project

Yale Lake - Recreation User Count Observations

This section presents the results of user count observations conducted at Yale Lake in 1996 and 1997 including:

- Developed fee campground counts
- RV versus tent camping counts
- Boat launch and day-use area vehicle counts
- Boat and bank angler counts
- Boat and watercraft counts and density
- Miscellaneous activity counts at developed facility sites
- Miscellaneous activity counts at undeveloped dispersed sites
- Estimate of annual and seasonal recreation visitation at Yale Lake
- Creel survey

Yale Lake Developed Fee Campground Counts - The previous section discussed campground occupancy rates for all 3 Lewis River Projects. Occupancy rates for PacifiCorp campgrounds at the 3 hydroelectric projects for the last 4 years include: annual (46 to 54 percent), weekday (34 to 43 percent), weekend (67 to 75 percent), and holiday (85 to 97 percent). Results for the 3 Yale Lake campgrounds (Beaver Bay, Cougar Camp, and Saddle Dam) are presented in [Table 3.3-7](#) below.

Table 3.3-7. Occupancy rates at Yale Lake campgrounds during the last 4 years (1994 to 1997).

Campground	Annual Seasonal Occupancy	Weekday Seasonal Occupancy*	Weekend Seasonal Occupancy*	Summer Holiday Occupancy
Beaver Bay	Range 41-59% (47% avg.)	Range 34-52% (39% avg.)	Range 67-83% (71% avg.)	Range 67-100% (98% avg.)
Cougar Camp	Range 71-78% (73% avg.)	Range 34-52% (39% avg.)	Range 67-83% (71% avg.)	Range 88-100% (98% avg.)
Saddle Dam	Range 34-69% (49% avg.)	Range 34-52% (39% avg.)	Range 67-83% (71% avg.)	Range 64-149% (100% avg.)
* Occupancy rates derived from total Lewis River Projects.				

As shown in Table 3.3-7, Yale Lake campground occupancy rates vary by site and timeframe. Annually, Cougar Camp receives the highest amount of use at an average occupancy of 73%, or about three-quarters full. The other 2 campgrounds have similar annual occupancy rates at 47 to 49 percent, or about half full. Weekday occupancy rates for each campground averaged 39 percent and weekend occupancy rates averaged 71 percent, resulting in a 32 percent difference between weekend and weekday rates (totals for all PacifiCorp campgrounds combined). Summer holiday weekends (Memorial Day,

July 4, and Labor Day) showed the highest occupancy rates, as expected, with full or near full conditions (98 to 100 percent). Saddle Dam was the most full and occasionally over capacity during the 4-year period. This is likely due to the number of campsites available (15 versus 63, respectively). Weather played a big role in occupancy rates over the entire season.

During the 20 weekend or holiday days surveyed in 1996 for this study, campground occupancy at PacifiCorp's 3 campgrounds (Beaver Bay, Cougar Camp, and Saddle Dam) was high, as evidenced in [Figure 3.3-4](#) and includes the following percent of times above threshold levels:

- Percent of time that occupancy levels were above 60 percent: Beaver Bay (65 percent), Cougar Camp (75 percent), and Saddle Dam (70 percent).
- Above 70 percent: Beaver Bay (60 percent), Cougar Camp (70 percent), and Saddle Dam (70 percent).
- Above 80 percent: Beaver Bay (55 percent), Cougar Camp (70 percent), and Saddle Dam (65 percent).
- Above 90 percent: Beaver Bay (50 percent), Cougar Camp (70 percent), and Saddle Dam (60 percent).
- At or above 100 percent: Beaver Bay (45 percent), Cougar Camp (65 percent), and Saddle Dam (60 percent).

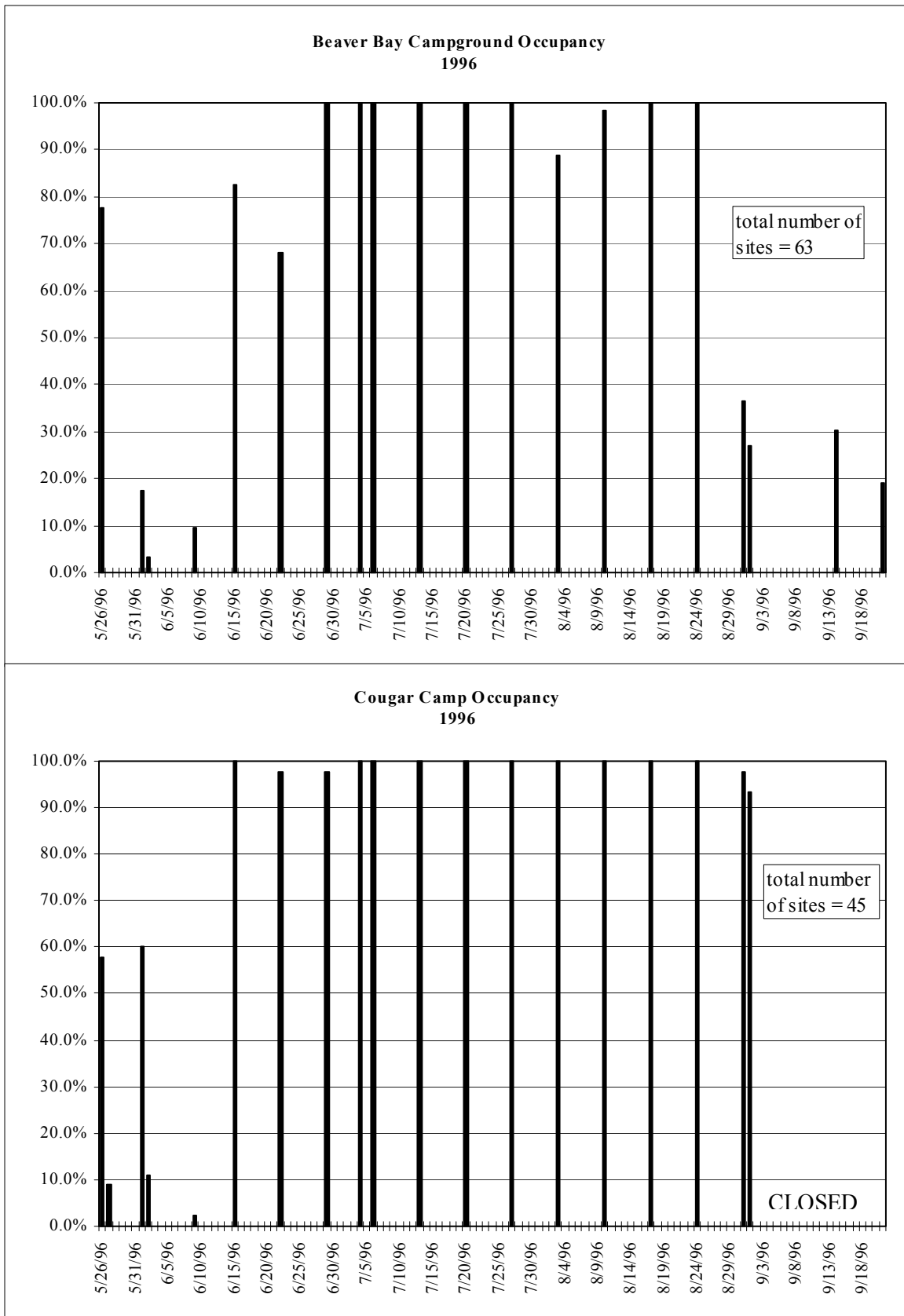


Figure 3.3-4. Number of Yale Lake campsites occupied on days surveyed, 1996.

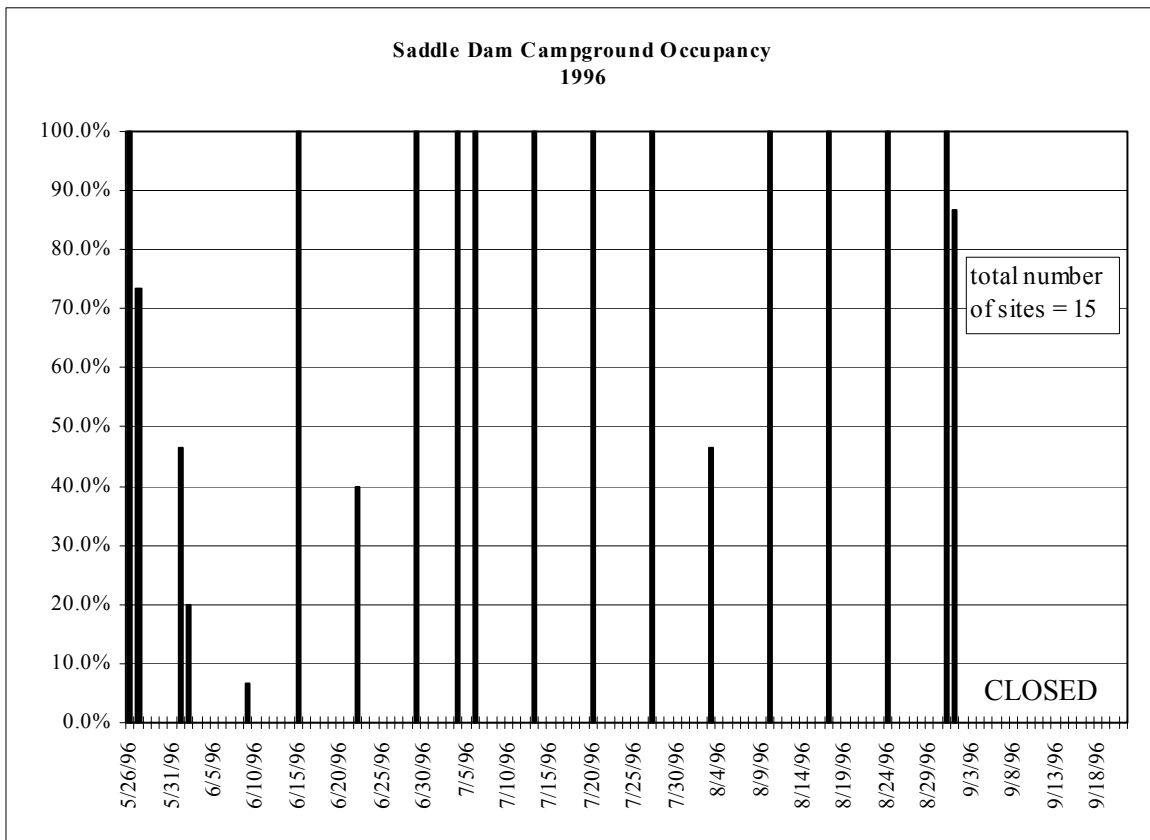


Figure 3.3-4. Number of Yale Lake campsites occupied on days surveyed, 1996 (continued).

RV Versus Tent Camping at Yale Lake - Yale Lake campgrounds were surveyed to determine the mix of RV campers versus tent campers at each site. Overall, about 3 out of 4 campers use tents; however, this high number includes Cougar Camp, which is tent-camping only. In addition, campgrounds do not provide hook-ups which are desired by some RV campers. RV use at Beaver Bay and Saddle Dam campgrounds accounts for a third to less than half of the use. The split of RV versus tent camping at Yale Lake campgrounds for holiday and non-holiday periods includes:

- Beaver Bay - Holiday periods: tents (52 percent), RVs (48 percent); Non-holiday periods: tents (62 percent), RVs (38 percent)
- Cougar Camp - Holiday and non-holiday periods: tents (100 percent, no RVs are allowed)
- Saddle Dam - Holiday periods: tents (54 percent), RVs (46 percent); Non-holiday periods: tents (64 percent), RVs (36 percent)
- All Campgrounds Combined - Holiday periods: tents (71 percent), RVs (29 percent); Non-holiday periods: tents (76 percent), RVs (24 percent)

Yale Lake Boat Launch and Day-Use Area Parking - Vehicles and vehicles with boat trailers were counted at Yale Lake boat launches 3 times a day (morning, mid-day, and afternoon) during the survey period. The results of these survey counts for holiday and non-holiday weekends are presented in [Figures 3.3-5 through 3.3-9](#). Wait times for boat launches are discussed in Section 3.3.2.2.

Beaver Bay - During holiday weekends, the day-use area/boat launch parking lot typically had 3 to 15 vehicles parked, with an average of 11 vehicles. Most vehicles were parked during the warmer mid-day to afternoon timeframe. Slightly over half (55 percent) of the vehicles parked were vehicles with boat trailers.

At peak times of the day during holiday weekends, parking lot occupancy averaged only 38 percent, assuming a capacity of 40 vehicles. This lot was rarely full, despite the adjacent picnic and swim area. July 4 and Labor Day weekends saw higher occupancy rates than Memorial Day weekend.

During non-holiday weekends, use was similar to holiday weekends with 8 to 14 vehicles parked averaging 12 vehicles during the day. Most vehicles were again parked during the warmer mid-day to afternoon timeframe. Over half (58 percent) of the vehicles parked were vehicles with boat trailers. At peak times of the day during non-holiday weekends, parking lot occupancy averaged only 35 percent.

Cougar Camp - During holiday weekends, the boat launch parking lot typically had 24 to 29 vehicles parked, with an average of 25 vehicles. Vehicles were parked fairly evenly during the day, which was different from other Yale Lake sites. This is partly due to overflow parking from the adjacent Cougar Camp and sailing regatta participants who arrived in the mornings. Three out of 5 (60 percent) vehicles parked were without trailers due to overflow campground parking. At peak times of the day during holiday weekends (mid-day), parking lot occupancy averaged only 28 percent, assuming a capacity of 100 vehicles. July 4 and Labor Day weekends saw higher occupancy rates than Memorial Day weekend. This lot was rarely full, despite the adjacent campground parking overflow.

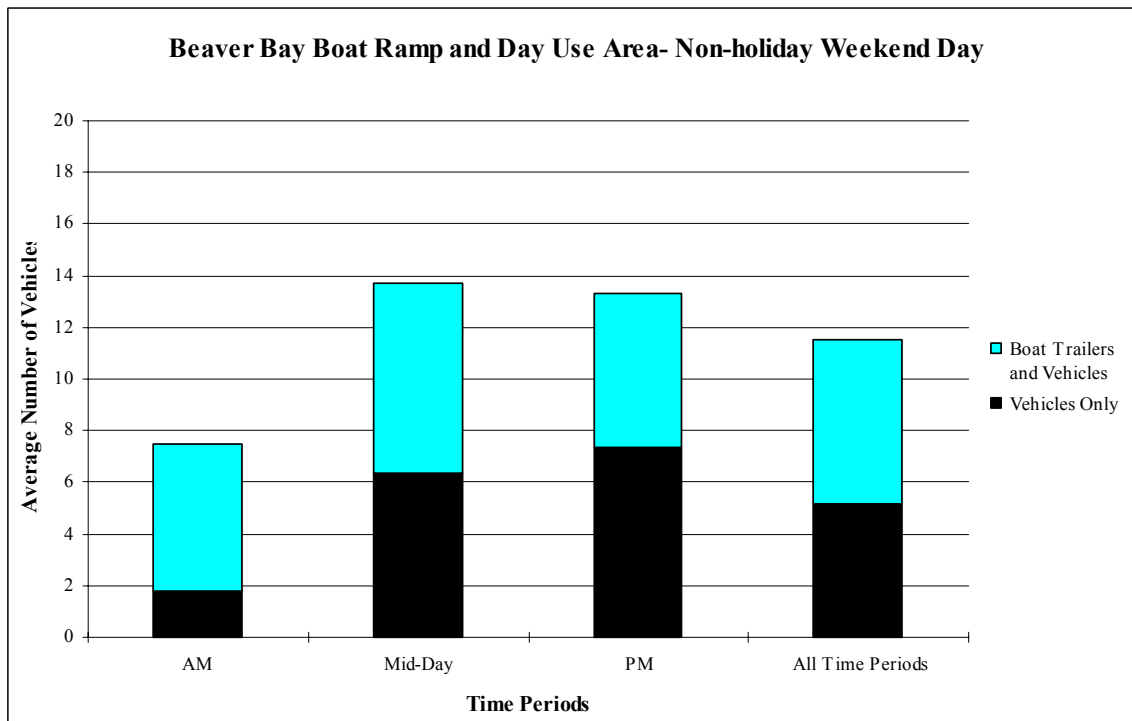
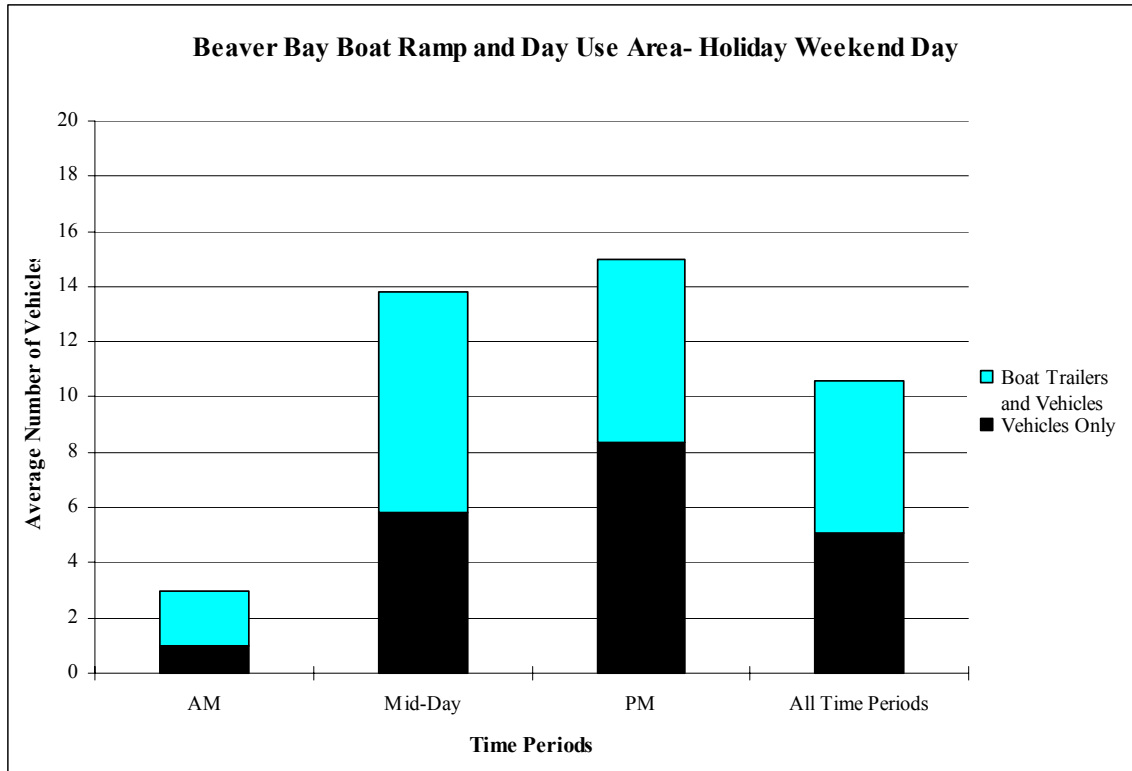


Figure 3.3-5. Average number of vehicles and boat trailers parked at the Beaver Bay boat launch and day-use area, 1996-1997.

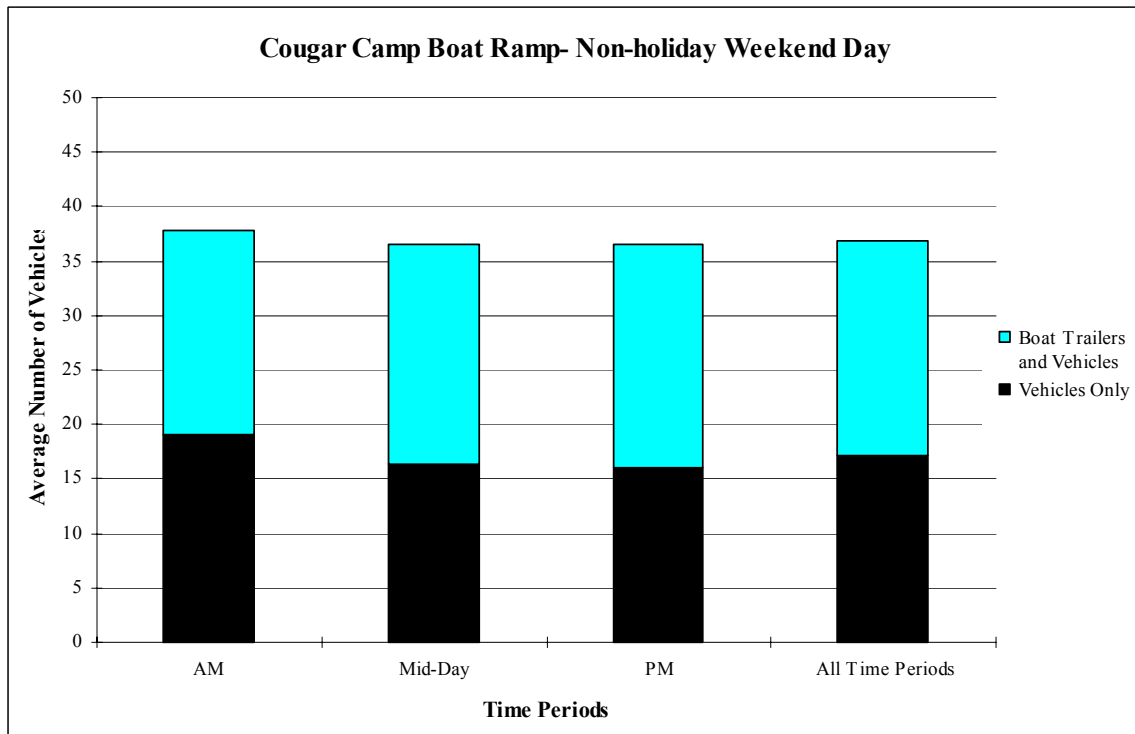
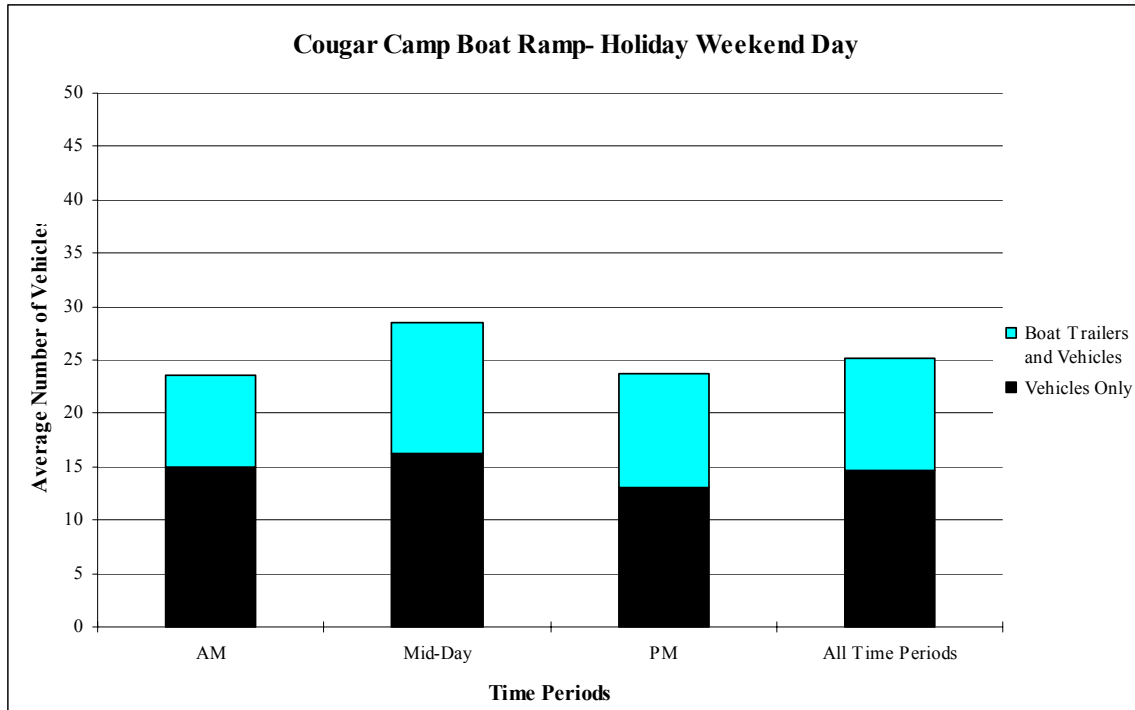


Figure 3.3-6. Average number of vehicles and boat trailers parked at the Cougar Camp/Park boat launch area, 1996-1997.

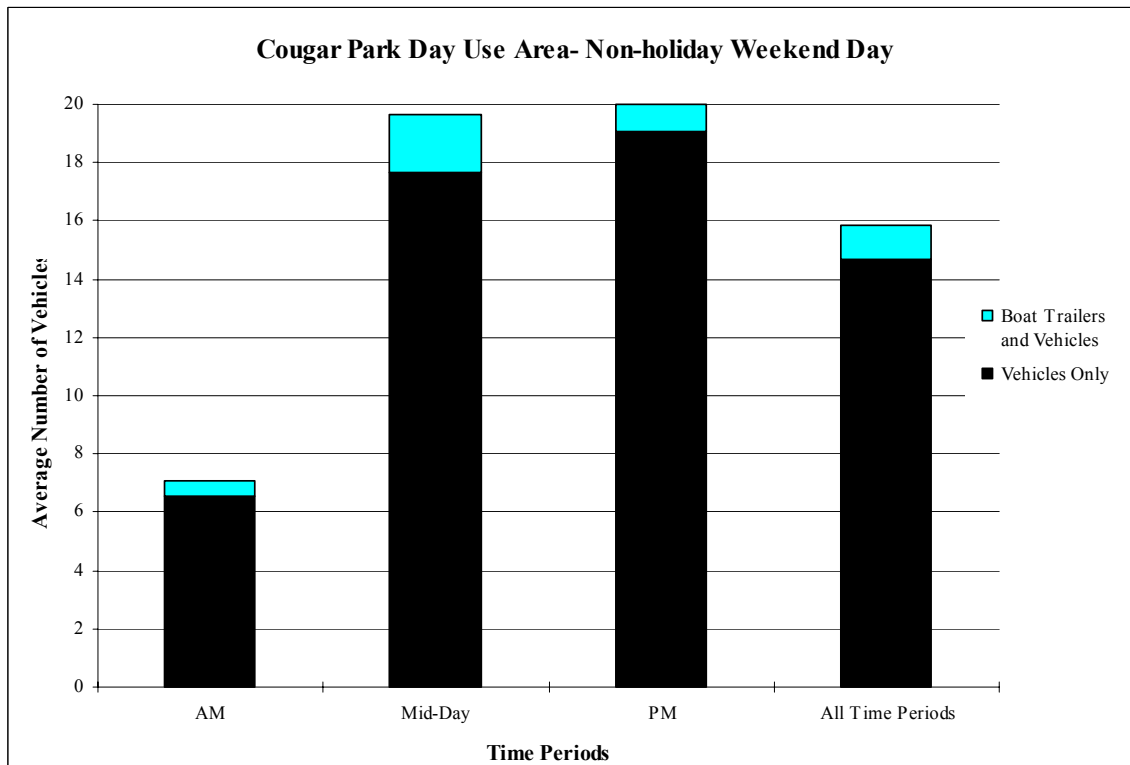
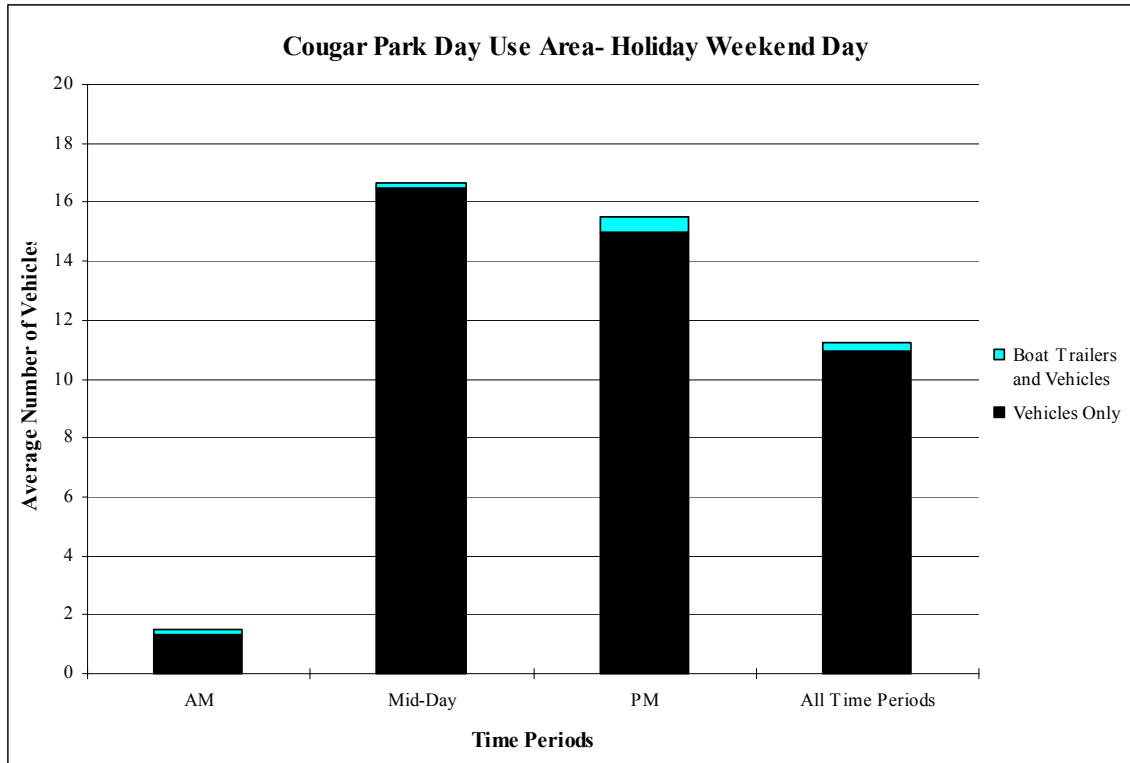


Figure 3.3-7. Average number of vehicles and boat trailers parked at the Cougar Park day-use area, 1996-1997.

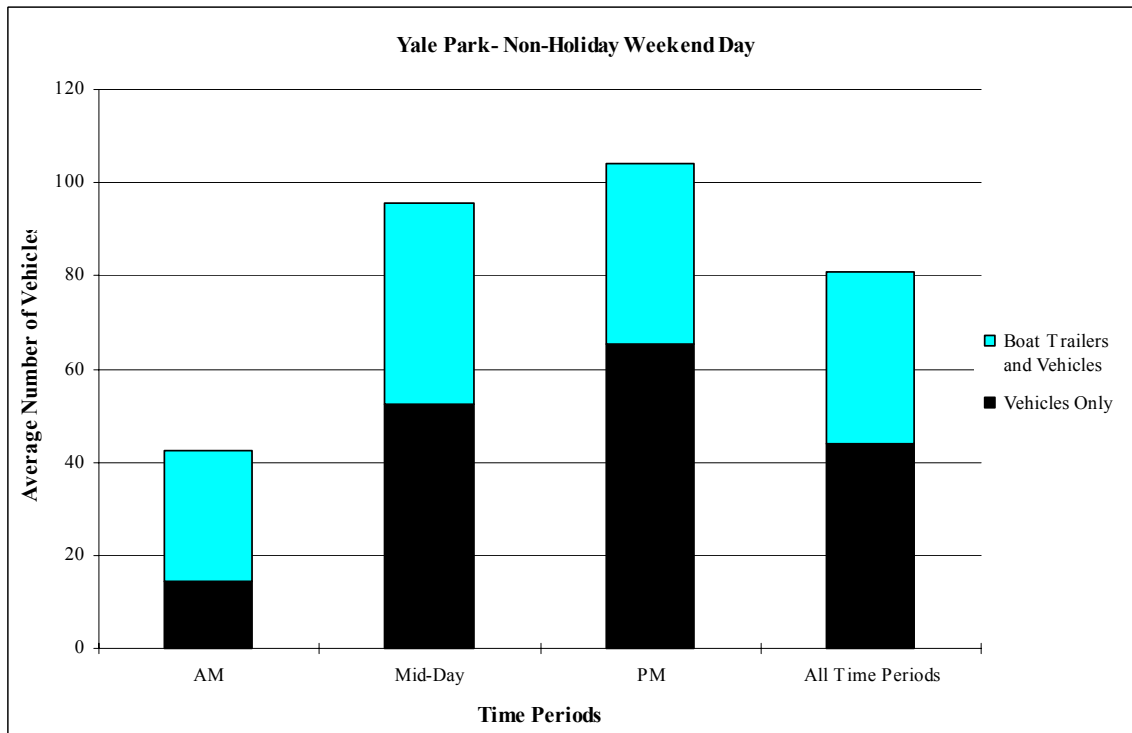
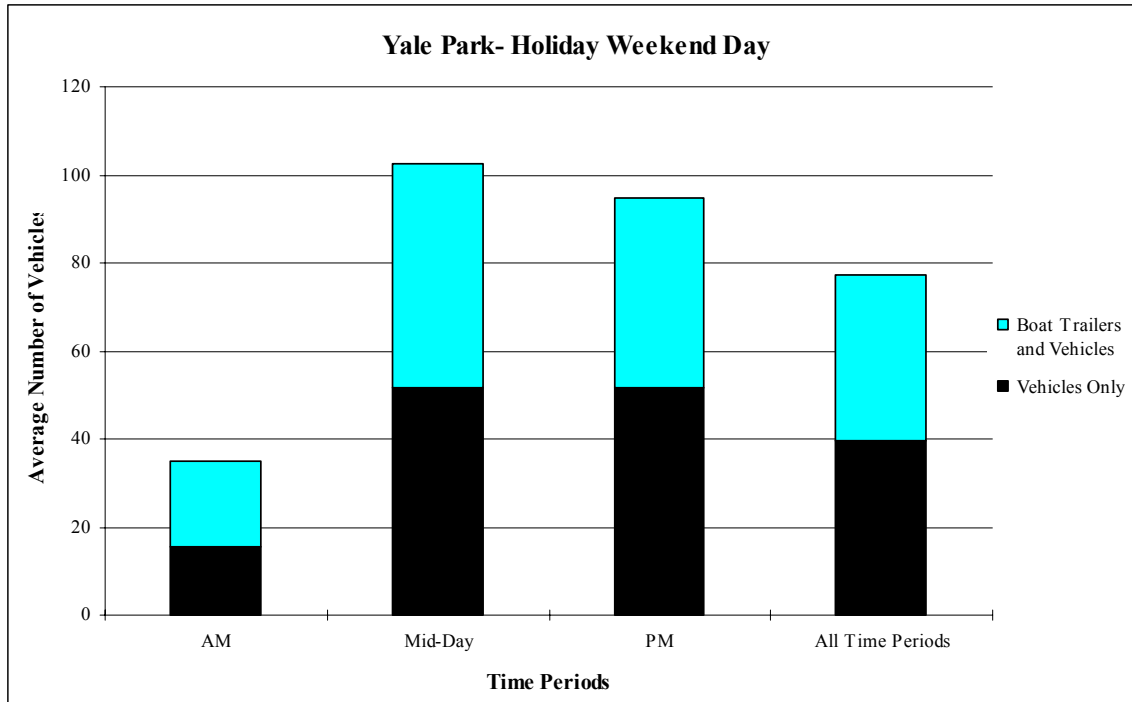


Figure 3.3-8. Average number of vehicles and boat trailers parked at the Yale Park boat launch and day-use area, 1996-1997.

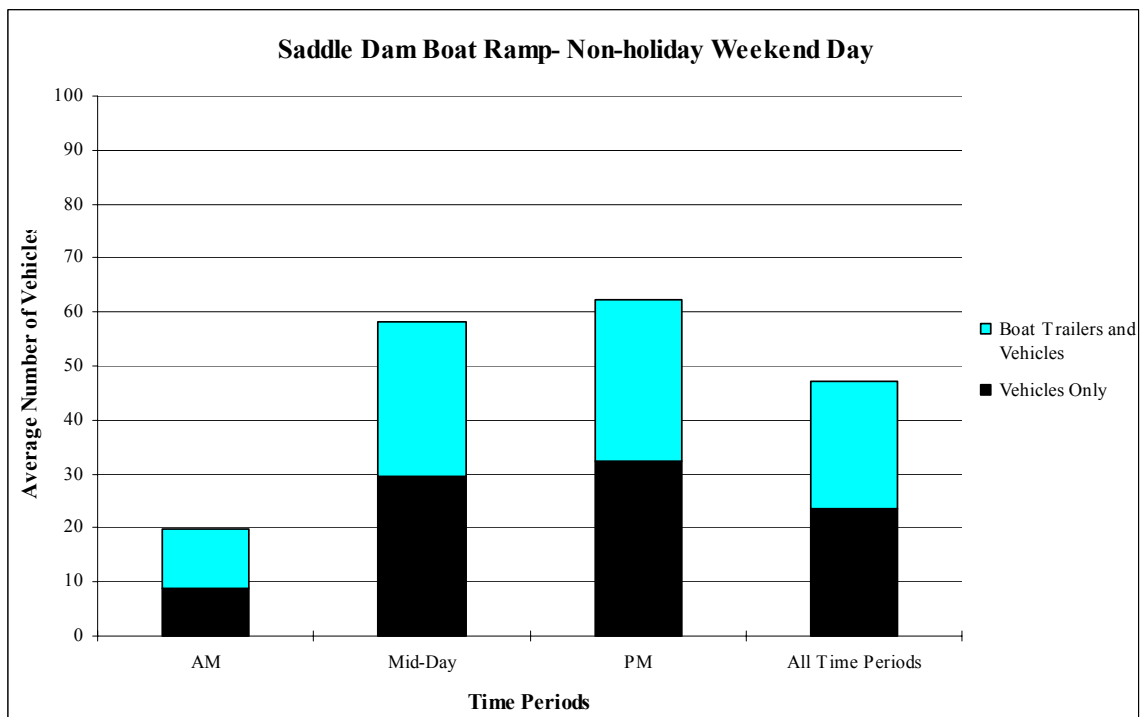
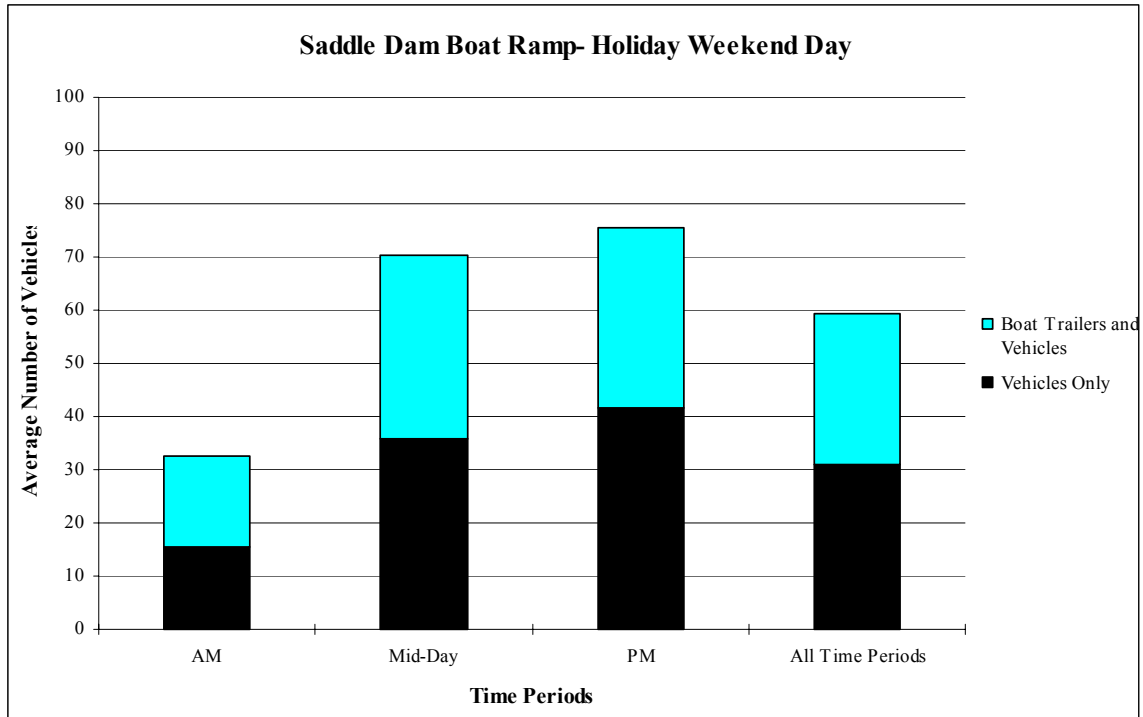


Figure 3.3-9. Average number of vehicles and boat trailers parked at the Saddle Dam boat launch and day-use area, 1996-1997.

During non-holiday weekends, use was higher than during holiday weekends because of sailing regattas with 37 vehicles parked during the day. Most vehicles were again parked during the entire day with little variance. Unlike the holiday weekends, over half (54 percent) of the vehicles parked were vehicles with boat trailers. The parking lot occupancy averaged only 38 percent; however, the lot was full during sailing regattas and parking was exacerbated by the configuration of the lot and the lack of designated parking stalls.

Cougar Park - During holiday weekends, the day-use area parking lot typically had 2 to 17 vehicles parked, with an average of 12 vehicles. Most vehicles were parked during the warmer mid-day to afternoon timeframe. Almost all (92 percent) of the vehicles parked were vehicles without boat trailers. At peak times of the day during holiday weekends, parking lot occupancy averaged only 22 percent, assuming a capacity of 80 vehicles. This lot was rarely full, despite the adjacent picnic and swim area. July 4 and Labor Day weekends saw higher occupancy rates than Memorial Day weekend.

During non-holiday weekends, use was similar to but slightly higher than holiday weekends, with 7 to 20 vehicles parked averaging 16 vehicles during the day. Most vehicles were again parked during the warmer mid-day to afternoon timeframe. Most (88 percent) of the vehicles parked were vehicles without boat trailers. At peak times of the day during non-holiday weekends, parking lot occupancy averaged only 25 percent.

Yale Park - During holiday weekends, the day-use area/boat launch parking lot typically had 37 to 102 vehicles parked, with an average of 79 vehicles. Most vehicles were parked during the warmer mid-day to afternoon timeframe. Slightly over half (51 percent) of the vehicles parked were vehicles without boat trailers. At peak times of the day during holiday weekends, parking lot occupancy averaged 37 percent, assuming a capacity of 280 vehicles. This lot was generally not full, unless the weekend weather was very hot which sometimes resulted in overflow conditions with vehicles parked along the highway. July 4 and Labor Day weekends saw higher occupancy rates than Memorial Day weekend.

During non-holiday weekends, use was similar to holiday weekends, with 42 to 103 vehicles parked averaging 81 vehicles during the day. Most vehicles were again parked during the warmer mid-day to afternoon timeframe. Over half (53 percent) of the vehicles parked were vehicles without boat trailers. At peak times of the day during non-holiday weekends, parking lot occupancy averaged 37 percent. Again, overflow conditions would sometimes arise during very hot late summer weekend days (up to about 305 vehicles or 109 percent occupancy).

Saddle Dam - During holiday weekends, the day-use area/boat launch parking lot and adjacent road shoulder (parking was allowed and encouraged on the road shoulder) typically had 33 to 75 vehicles parked, with an average of 60 vehicles. Most vehicles were parked during the warmer mid-day to afternoon timeframe. Half (50 percent) of the vehicles parked were vehicles with boat trailers. At peak times of the day during holiday weekends, parking lot occupancy averaged only 38 percent, assuming a capacity of 200 vehicles. If the late summer weather is very hot, overflow conditions do occur resulting

in the entry gate having to be closed. Such closures occurred up to 5 times per year. July 4 and Labor Day weekends see higher occupancy rates than Memorial Day weekend.

During non-holiday weekends, use was lower than holiday weekends with 20 to 62 vehicles parked averaging 48 vehicles during the day. Most vehicles were again parked during the warmer mid-day to afternoon timeframe. Over half (52 percent) of the vehicles parked were vehicles with boat trailers. At peak times of the day during non-holiday weekends, parking lot occupancy averaged only 31 percent. However, very hot late summer weather could result in overflow conditions.

In 1998, PacifiCorp temporarily closed the Saddle Dam recreation site because of crowding, site design, and on-site management problems. Reuse and redesign of this site are being considered by PacifiCorp. The site is scheduled to be reopened in 1999.

Yale Lake Angler Counts - During survey periods, boat and bank anglers were counted 3 times per day from the 5 developed recreation sites. These counts included all anglers visible from those sites during a single snapshot timeframe. The results are presented below in [Table 3.3-8](#) for holiday and non-holiday weekends and peak and average counts by site.

As seen in Table 3.3-8, most anglers observed were boat fishing (3.7 boat anglers compared to 0.8 bank anglers on average). Most boat anglers were observed from Yale Park in the central portion of the reservoir. Cougar Camp was the next highest site for boat angler observations. An average of about 4 boat anglers were observed at any location during both holiday and non-holiday weekends.

Table 3.3-8. Average boat and bank anglers observed during holiday and non-holiday weekends at Yale Lake recreation sites, 1996-1997.

Location	Maximum No. of Anglers Observed		Average No. of Anglers Observed	
	Holiday	Non-Holiday	Holiday	Non-Holiday
Beaver Bay				
Boat	5.5	3.2	3.9	3.0
Bank	1.0	2.0	0.5	1.8
Cougar Camp				
Boat	8.8	4.8	6.5	4.4
Bank	2.0	2.2	1.5	2.0
Cougar Park				
Boat	0.0	0.0	0.0	0.0
Bank	1.0	0.9	0.4	0.6
Yale Park				
Boat	15.8	13.0	10.2	11.7
Bank	2.9	2.9	2.1	2.1
Saddle Dam				
Boat	5.8	3.9	4.2	2.5
Bank	0.5	0.4	0.3	0.3
AVG TOTAL				
Boat	6.8	5.9	4.1	3.7
Bank	1.3	1.3	0.8	0.8

Bank anglers were observed somewhat more during non-holiday weekends than holiday weekends; however, the difference was not great. Like boat anglers, most bank anglers were also observed at Yale Park, followed by Beaver Bay and Cougar Camp for the most bank anglers observed.

Yale Lake Boat Counts - As summarized in [Table 3.3-9](#), results of lake boater counts during 5 summer days in 1996 indicate that on typical non-sailboat regatta days, Yale Lake is most heavily used by power boaters, followed by jet skis/PWC and, to a lesser extent, inflatables and other craft. As expected, summer weekends and holidays with hot weather have the highest watercraft use. Maximum observed watercraft use on the lake during the survey period was around 138 boats during the 3 peak use days (July 6, July 21, and August 31) which resulted in a density of 25 surface reservoir acres per watercraft. The minimum observed watercraft use on the lake was 48 boats on August 18, an overcast summer day, which resulted in a density of 73 surface reservoir acres per watercraft.

Power boat use on the reservoir accounts for about 2 out of 3 boats (65 percent). The number of power boats at any one time averaged 70 and ranged from 36 boats on August 18 (an overcast, breezy day) to 90 boats on July 21 (a typical warm, sunny day), suggesting that weather conditions generally influence demand. Power boats were observed at or near all developed sites, with the most power boats (average of 15 to 17) observed at or near Yale Park at any one time.

Table 3.3-9. Watercraft and angler use of Yale Lake during 1996 lake boater counts.

Survey Date	Power boats	Sail boats (non-regatta)	Jet skis/PWC	Row-boat/Canoe/Kayaks	Inflatable	Total No. of Boats on Reservoir	Boat Anglers	Bank Anglers
June 2	58	2	15	2	0	77	40	10
July 6 (holiday weekend)	88	2	23	7	19	139	30	8
July 21	90	7	20	11	10	138	19	1
August 18	36	0	3	5	4	48	0	0
August 31 (holiday weekend)	77	0	52	4	3	136	32	4
Average of 5 days	70	2	23	5	7	107	23	5

Jet ski/PWC use (21 percent of the total) averaged 23 watercraft at any one time and ranged from 3 observed watercraft on August 18 to 52 jetskis/PWC on August 31 (Labor Day weekend). Jetskis/PWC were observed at all developed sites, with the most PWC (average 5 to 7) observed at or near Saddle Dam. Yale Park averaged slightly fewer PWC at 3 to 7.

Inflatable use on the reservoir averaged 7 percent at any one time and ranged from 0 to a high of 19 inflatables (on July 6). Most inflatables were found near shore at the campgrounds and at dispersed campsites. One or more inflatables were observed at each site, with Cougar Park generally having the highest number.

Other watercraft types (e.g., sailboats, kayaks, canoes, and row boats) were seldom observed on the water. Seven sailboats were observed on the water on the July 21 count; all other days showed 2 or less sail boats. However, on sailboat regatta weekends, the number of small sailboats on the water can reach 25 to 75 during larger events. Sailboats were mostly observed in and around the Cougar Camp/Park launch during non-holiday weekends. Sailboats actually edged out power boats at the Cougar Camp/Park launch for the largest percentage of craft-type observed (38 versus 30, respectively). Overall, power boats account for about two-thirds of the use at Yale Lake.

Observations of boat anglers averaged 23 at any one time and ranged from 40 on the June 2 count to 0 on the August 18 count. With the exception of Labor Day weekend, boat angling is highest early in the season and then declines as the weather warms, catch rates decrease, and other boat users dominate lake usage. An average of 5 bank anglers were observed at any one time, with twice that number observed early in the season. Snapshot averages for other recreationists or activities observed during the 5 on-water boat survey days include: dispersed campers (38), swimmers/sunbathers (27), picnickers and those relaxing (16), and bicyclists (5).

As previously indicated in Figure 2.3-4, watercraft use on Yale Lake varies according to location. Power boating occurs virtually everywhere on the reservoir, with use concentrated near the main boat launches (i.e., Yale Park and Saddle Dam Campground). Anglers in particular tend to motor to more remote areas of the lake, such as the northeastern tip, away from water skiers and jetskiers/PWC users. Jetski/PWC use is heavily concentrated near the boat launches, including Yale Park, Saddle Dam Campground, and Cougar Camp/Park. Less jetski/PWC use was observed in the vicinity of Beaver Bay Campground. Like jetski/PWC use, water skiing occurred mostly in the vicinity of Saddle Dam Campground and Yale Park. Sailboats, when observed primarily during regattas, were in the vicinity of Cougar Camp/Park, with their range extending to the vicinity of Yale Park to the south. Most sailboats on the reservoir are typically launched from the Cougar Camp boat launch.

Yale Lake Miscellaneous Activity Counts at Developed Sites - While surveying developed sites, counts were taken of various non-camping/boating or miscellaneous activities occurring in the area including picnicking, swimming/sunbathing, relaxing, bicycling, equestrian activities, taking a rest stop, and hunting. The dominant activity observed was relaxing, followed by swimming and picnicking.

Relaxing was observed at all developed sites, particularly at Yale Park and Saddle Dam day-use areas. Overall, relaxing accounted for 57 percent of the holiday miscellaneous activities observed. During the non-holiday weekends, relaxing accounted for half (50 percent) of the observed miscellaneous activity. Swimming was the second-most popular miscellaneous activity, accounting for 14 percent of the holiday weekend use and 26 percent of the non-holiday weekend use. Picnicking was the third most popular miscellaneous activity, accounting for 14 percent of the holiday weekend use and 18 percent of the non-holiday weekend use. The other miscellaneous activities (bicycling, equestrian activities, taking a rest stop, and hunting) were not observed or accounted for only 1 to 2 percent of the use.

Yale Lake Miscellaneous Activity Counts at Dispersed Use Areas - Counts were taken at 6 undeveloped dispersed sites including: (1) the East Lewis River bridge crossing area, (2) the cove/point near Yale Dam, (3) the cove near Saddle Dam, (4) Siouxon Creek bridge/IP Road area, (5) Swift No. 2 power canal, and (6) the Speelyai Canal. Counts were taken of boating activities (including type of craft), fishing (boat and bank), picnicking, swimming/sunbathing, camping, number of parked vehicles, equestrian activities, hunting, bicycling, and relaxing. The dominant activities observed at each of these locations are summarized below.

East Lewis River Bridge Crossing Area - At this beautiful river location immediately upstream from Yale Lake, an occasional inflatable boat was observed in the river near the bridge. An average of 2 bank anglers were seen fishing along the shoreline. A few camping parties were typically observed, averaging 9 people (2 to 3 parties) during holiday weekends and 6 people (1 to 2 parties) during non-holiday weekends. An average number of parked vehicles at this location was 4 during holiday and non-holiday weekends. One or more swimmers/sunbathers and 3 to 5 people relaxing were also observed on a continuous basis.

Cove/Point Near Yale Dam - This prime site on the reservoir near the main dam is a very popular camping location and is almost always occupied, sometimes for days or weeks. At this location, an average of 3.1 to 3.6 powerboats were observed during the holiday and non-holiday weekends, respectively. Jetskis/PWC were observed occasionally as well. An average of 2.5 to 4 boat anglers were observed during these 2 timeframes. During holiday weekends, an average of 13 campers (3 to 4 groups) were observed; during non-holiday weekends, an average of 8 campers (2 to 3 groups) were observed. Campers may boat-in or walk-in from the nearby IP Road.

Cove Near Saddle Dam - This site near Saddle Dam is a convenient shoreline area but receives minimal use; an occasional power boat, jetski/PWC, and inflatable boat may also be observed. Boat anglers may also be observed occasionally, along with a few picnickers, campers, and people relaxing. This site's proximity and visibility from the sometimes crowded and noisy boat launch area may detract from its desirability as a dispersed site.

Siouxon Creek Bridge/IP Road Area - Siouxon Creek Arm is a scenic area of the reservoir where the creek has been inundated. Boat-in access is the primary way to access this reach. An average of 2 to 3 power boats were observed during visits, with an occasional PWC and inflatable boat also seen. One to 2 boat anglers were also observed during each visit. This area is a popular boat-in camping area with an average of 13 people (3 to 4 parties) observed during holiday weekends and 2 people (1 party) observed during non-holiday weekends. Parties were also observed relaxing. It should be noted that not all shoreline sites may be observed from the IP Road. Several sites occur farther upstream and require a boat to observe. These sites were documented in the Yale Lake Boat Counts Survey while in a boat.

Swift No. 2 Power Canal - Upstream of the project is the Swift No. 2 power canal. Bank angling is a popular activity here with an average of 3 to 5 anglers observed during each

visit. Several vehicles were observed parked in this area near the power canal--approximately 10 during holiday weekends and 4 during non-holiday weekends. Dispersed campers may also be found near the power canal with an average of 6 persons (1 to 2 parties) during holiday weekends and 2 persons (1 party) during non-holiday weekends. Swimmers/sunbathers are also found along the power canal, averaging 1 to 3 per visit. People relaxing is also a common site.

Speelyai Canal - No persons were observed recreating at or near the Speelyai Canal. Vehicle access is restricted by a locked gate; therefore, this site is a boat-in or walk-in site only.

Yale Lake Recreation Visitation Estimate - [Table 3.3-10](#) presents an estimate of developed and dispersed recreation visitation at Yale Lake. Developed facility use estimates are based on PacifiCorp vehicle counts (4-year average) during peak and non-peak seasons and the application of a conversion factor. Other dispersed use where no vehicle counters exist is estimated based on anticipated vehicles accessing the eastern IP Road area and East Lewis River bridge crossing area, also with the application of a conversion factor. In addition, other non-counted equestrian, hiking, biking, hunting, and fishing activity is assumed and estimated during the peak and non-peak seasons. Annual visitation (1997) is estimated at 372,665 recreation visits, of which 96 percent is accounted for at the existing 5 developed facilities and 4 percent is an estimate of additional dispersed use (use not based on vehicle counts).

Table 3.3-10. Estimated current annual and seasonal recreation visitation at Yale Lake.

Facilities	Estimated Annual Visitation*(%)	Estimated Average Peak Season Visits/Day*	Estimated Avg. Non-Peak Season Visits/Day*
Dispersed Use	13,843 (04%)	78	23
Saddle Dam	55,381 (15%)	490	67
Cougar Camp	54,529 (15%)	527	22
Cougar Park	37,876 (10%)	366	17
Yale Park	133,709 (35%)	737	248
Beaver Bay	77,327 (21%)	655	254
Total	372,665 (100%)	2,853	631
* Developed facility use based on a 4-year average of actual vehicle counts and a conversion factor of 3.4 persons per vehicle. Dispersed use is based on estimated seasonal trail use, hunting, and bank fishing (no vehicle count data).			

During the peak recreation season (Memorial Day to Labor Day weekend), the average number of visits per day is estimated at 2,853 people. During the non-peak season (number of days vary by site), the number of average visits per day drops to an estimated 631 people or 22 percent of the average peak season.

Dispersed use is estimated at 13,843 recreation visits annually (7,904 peak season and 5,939 non-peak season) and includes use not accounted for by existing vehicle counters at the 5 developed sites. These uncouned activities include estimated recreation use at the East Lewis River bridge crossing area, along the eastern IP Road corridor and Siouxon,

bicycling, hiking and equestrian trail activity, seasonal hunting, and roadside bank fishing. Activities at the Swift No. 2 power canal and the dewatered Swift bypass reach are not included as these areas are part of the upstream Swift Project. Other dispersed use is also accounted for at boat launches where vehicles are counted, which would account for activities such as boat-in camping and other day-use activities.

Yale Park receives the most visitation annually as it is the only facility open year round--about 134,000 visitors annually or 35 percent of total visitation at Yale Lake. Beaver Bay comes in second with about 77,000 visitors annually or 21 percent of total visitation. Visitation at Saddle Dam and Cougar Camp are both estimated at about 55,000 annually each and account for about 15 percent of total visitation each. Visitation at Cougar Park is estimated at about 38,000 annually or 10 percent of total visitation.

Yale Lake Creel Survey Results - This section provides a brief summary of the results of a year-long creel survey (75 days of sampling) conducted by Harza Northwest for PacifiCorp as a part of the aquatic resource studies for Yale relicensing. Detailed results are presented in the FTR for Aquatic Resources (PacifiCorp 1997b). Contacted boat anglers (341) and bank anglers (326) fished for 1,935 hours and caught 604 gamefish. Gamefish caught include kokanee (73 percent), rainbow trout (23 percent), and cutthroat trout (4 percent). Boat anglers caught most (96 percent) of the creeled kokanee, less than half (44 percent) of the creeled cutthroat trout, and about a quarter (23 percent) of the creeled rainbow trout. The mean catch rate of all gamefish was 0.30 fish per angler hour. Boat and bank anglers had about the same catch rate (0.30 versus 0.31, respectively). The total harvest was estimated at 4,789 gamefish (3,656 kokanee, 221 cutthroat trout, and 912 rainbow trout). A reduction in angler success was observed during the time of the annual drawdown of Yale Lake (typically between the end of September through mid-April).

3.3.2 Recreation Visitor Attitudes and Preference Survey Results

Recreation survey forms (questionnaires) were distributed at the 5 Yale Lake developed recreation sites (Beaver Bay, Cougar Camp, Cougar Park, Saddle Dam, and Yale Park) during the spring, summer, and fall of 1996 and the spring of 1997. A total of 776 surveys were completed sufficiently to be entered into a relational database. Survey results are divided into 5 main groups: overall visitor preferences and perceptions, camping, fishing, boating/jetskiing/PWC, and general visitor information. The results of the 1996-1997 Recreation Visitor Attitudes and Preference Survey are presented below.

Overall Visitor Preferences and Perceptions

Overall visitor preferences and perceptions were surveyed at Yale Lake. The results are summarized in 13 categories including:

- Activity participation
- Main activity of visitors overall
- Main activity of visitors by recreation site
- Main activity participation by timeframe

- Satisfaction with main activity by timeframe
- Overall satisfaction by timeframe
- Overall satisfaction by location
- Visitor perceptions of crowding
- Visitor perceptions of crowding by location
- Conflicts or complaints about other visitors
- Visitor perceptions of facility condition
- Additional facilities desired at Yale Lake
- Visitor destination habits

Activity Participation - Visitors were asked what activities (from a list of 19 activities) did they participate in during their stay at Yale Lake (multiple answers were allowed). Visitor responses include:

• RV/tent camping	75 percent
• Sunbathing/swimming	65 percent
• Hiking/walking	51 percent
• Sightseeing	50 percent
• Picnicking	47 percent
• Fishing	37 percent
• Power boating	29 percent
• Water skiing	24 percent
• Kayaking/canoeing/rowing/rafting	18 percent
• Mountain/road bicycling	17 percent
• Caving/rock climbing	16 percent
• Nature study/photography	15 percent
• Jetskiing/PWC use	14 percent
• 6 others	<10 percent

RV/tent camping was enjoyed by 3 out of 4 (75 percent) visitors surveyed at Yale Lake during the survey season. Camping activity increased over the summer months as use levels increased, from 66 percent in May to 85 percent in September.

Sunbathing was enjoyed by about 2 out of 3 visitors (65 percent) surveyed at Yale Lake and use was generally weather dependent, peaking in July and August during warmer periods and declining during cooler periods.

Walking and hiking were enjoyed by over half (51 percent) of those surveyed at Yale Lake. Activity increased during the warmer months peaking in September, with 2 out of 3 (68 percent) visitors indicating that they participated in this activity.

Half (50 percent) of those surveyed said they participated in sightseeing at Yale Lake. This activity was fairly constant all during the survey season (48 to 56 percent). This high percentage is to be expected given the proximity to the Monument.

Picnicking was enjoyed by almost half (47 percent) of those surveyed at Yale Lake. Participation remained fairly constant (50-53 percent), except for a drop in June (40 percent) due to cooler weather.

Fishing was enjoyed by over a third (37 percent) of those surveyed at Yale Lake. Participation was greater during the early part of the survey period with about half of those surveyed indicating that they were fishing in May (51 percent) and June (49 percent). Participation declined as crowds and temperatures increased and as fishing success apparently declined during July (34 percent) and August (29 percent). Activity picked up again in September (41 percent).

Power boating (excluding PWC) was enjoyed by less than a third (29 percent) of those surveyed at Yale Lake. Participation increased during the later summer months (August [32 percent], September [38 percent]).

Water skiing participation tended to mirror power boating activities with 1 out of 4 (24 percent) visitors participating in this sport, particularly during the warmer months. The majority (83 percent) of power boaters also said they went water skiing. During the cooler months, water skiing activity was light (May [13 percent], June [16 percent]).

Kayaking, canoeing, rowing, and rafting activities were enjoyed by about 1 in 5 (18 percent) visitors to Yale Lake. Participation peaked in the later summer months as temperatures warmed.

Mountain and road bicycling remained fairly constant (17-20 percent) during the survey period and averaged about 17 percent, with the coolest month (June) showing a decline of about half at 10 percent.

Caving and rock climbing participation showed a higher than expected rate of participation at 16 percent, likely due to the proximity of Ape Cave and Lava Canyon (USFS/Monument resource areas). Other self-exploration areas are available in the area. Participation was highest during the later summer months.

Nature study/photography was enjoyed by 15 percent of those surveyed at Yale Lake. Participation remained fairly constant all during the survey period, except during September when it dropped to 6 percent for reasons unknown.

Jetskiing/PWC use was similar to nature study at 14 percent; however, participation appeared to peak during holiday months (15-20 percent) and was lower during other months (10-12 percent).

Six categories of activities (hunting, sailing, backpacking, horseback riding, use of rest stops, and other [relaxation, family time, partying, windsurfing, and others]) all received under 10 percent collectively in this survey. Yale Lake facilities were not surveyed during the late fall hunting season; therefore, hunters would not be expected to be counted in this survey. Those who came to go sailing (50 respondents surveyed) generally did so in July and August during organized regattas or sailing events centered out of the Cougar Camp launch. Backpackers were generally not surveyed because they

would not likely be staying at Yale Lake facilities. Equestrians generally stayed on trails between Saddle Dam and Speelyai Canal and were not found in the recreation sites; therefore, their numbers are low. Those using rest stops at Yale Park and Cougar Park (71 survey respondents) tended to be in and out quickly and most did not take the time to fill out and return surveys; however, 8-9 percent of those surveyed indicated that they did use the rest stops provided. Of those indicating participating in an “other” activity, most (38 percent) were relaxing.

Main Activity of Visitors Overall - Visitors were asked what their main activity was during their stay at Yale Lake (using a list of 19 activities). Rank ordered activity priorities include:

- RV/tent camping 46 percent
- Fishing 10 percent
- Sunbathing/swimming 9 percent
- Power boating 8 percent
- Water skiing 5 percent
- Picnicking 5 percent
- Jetskiing/PWC use 4 percent
- Sailing 4 percent
- 11 others <4 percent

Main Activity of Visitors by Recreation Site - The main activity that visitors indicated that they participated in while at Yale Lake is presented in [Table 3.3-11](#) by site surveyed.

The main activity response by those surveyed was RV/tent camping by a wide margin. About half of the visitors surveyed identified RV/tent camping as their main activity at Cougar Camp (55 percent) and Beaver Bay Campground (46 percent). Far fewer respondents identified camping as their main activity at Saddle Dam Campground (34 percent), Cougar Park (23 percent), and Yale Park (6 percent), each having other significant day-use opportunities and fewer or no camping facilities present.

Most respondents (30 percent) identifying fishing as their main activity were surveyed at Yale Park, a popular boat launch site for the entire lake. All other sites surveyed showed lower main activity responses for fishing, in the 5 to 10 percent range.

Sunbathing/swimming responses were fairly constant at the 5 sites surveyed, ranging from 8 to 13 percent, with the most responses (13 percent) tallied at Cougar Park.

Respondents identifying power boating as a main activity were mostly surveyed at Yale Park and Saddle Dam Campground (13-15 percent). Main activity responses for power boating were lower (3-8 percent) at the other sites surveyed.

Table 3.3-11. Main activity participation by recreation site at Yale Lake, 1996-97.

Recreation Site	Activity	Percent Participation
Beaver Bay Campground	RV/tent camping	46%
	Fishing	10%
	Sunbathing/swim	09%
	Power boating	08%
	Picnicking	05%
	Water skiing	05%
	Hiking/walking	04%
Cougar Camp	RV/tent camping	55%
	Sunbathing/swim	09%
	Sailing	09%
	Power boating	06%
	Fishing	05%
	Hiking/walking	05%
Cougar Park	RV/tent camping	23%
	Picnicking	23%
	Sailing	20%
	Sunbathing/swim	13%
	Fishing	08%
	Power boating	03%
Saddle Dam Campground/ Day Use Area	RV/tent camping	34%
	Water skiing	17%
	Power boating	13%
	Jetskiing/PWC	12%
	Sunbathing/swim	09%
	Fishing	06%
Yale Park	Fishing	30%
	Picnicking	17%
	Power boating	15%
	Water skiing	08%
	Jetskiing/PWC	08%
	Sunbathing/swim	08%
	RV/tent camping	06%

Not surprisingly, respondents identifying picnicking as their main activity were almost all encountered at the 2 day-use sites: Yale Park (17 percent) and Cougar Park (23 percent). The only campground with a significant amount (5 percent) of respondents indicating picnicking as a main activity was Beaver Bay Campground, which has a separate picnic/swimming area.

Most respondents indicating water skiing as their main activity were observed at Yale Park (8 percent) and Saddle Dam Campground (17 percent). These are the 2 most popular areas for motorized craft use. On the opposite end of the lake to the east, Beaver Bay Campground respondents indicated water skiing as their main activity 5 percent of the time. Responses for jetskiing/PWC use as a main activity were very similar to responses for water skiing with Yale Park at 8 percent and Saddle Dam Campground at 12 percent.

Sailing responses were tallied most often at Cougar Park where organized events or regattas are held. Cougar Park respondents (counts included the boat launch area) said that sailing was their main activity 20 percent of the time, while Cougar Camp respondents indicated sailing 9 percent of the time.

Finally, hiking/walking responses were greatest (5 percent) at Cougar Camp, a tent-only campground with some trail opportunities in the area up Cougar Creek; and at Beaver Bay Campground (4 percent), the closest campground to USFS/Monument trails to the east. All other sites had insignificant responses which are not surprising due to the lack of trails in the area.

Main Activity Participation by Timeframe - RV/tent camping responses did not change significantly throughout the recreation season; it was still the number 1 activity identified, ranging from 40 to 47 percent. RV/tent camping responses by timeframe include: Memorial Day weekend (45 percent), July 4 weekend (40 percent), Labor Day weekend (46 percent), and non-holiday weekends (47 percent).

Fishing as a main activity was identified mostly early in the season, coinciding with increased fishing success (18 percent during Memorial Day weekend); however, fishing as a main activity was also fairly significant (10 percent) during non-holiday weekends throughout the season when other power boating or jetskiing/PWC activities occurring on the lake were less.

Power boating, water skiing, and jetskiing/PWC use as a main activity tended to be greater during holiday weekends than non-holiday weekends, and responses were greater during the warmer months than the cooler months. All other main activities were identified by less than 3 percent of survey respondents.

Satisfaction With Main Activity by Timeframe - Responses to visitor satisfaction with their “main activity” are presented in [Table 3.3-12](#), rated from poor to perfect on a 6-point scale. Most visitors surveyed indicated that they had a good (or better) experience. No 1 activity group stands out as being particularly negative, while responses to several activities are quite positive.

Campers tended to enjoy their experience, particularly early in the season. As presented in Table 3.3-12, most campers (96 percent) rated their camping experience as good to perfect, a very positive rating, with only 4 percent saying that it was poor to fair. Camper experiences tended to be better during May (85 percent very good to excellent rating, compared to 69 percent) and somewhat lower during the rest of the season, possibly due to increased crowds.

Visitors tended to enjoy their sightseeing and picnicking experiences. Most respondents (95 percent) rated their experience as good to perfect. Only 5 percent indicated a poor to fair rating. All picnickers (100 percent) rated their experience as good (or better), most (44 percent) indicating that it was an excellent experience.

Table 3.3-12. Visitor satisfaction with their main activity at Yale Lake, 1996-97.

Activity	Overall Satisfaction Rating (% rounded)					
	Poor	Fair	Good	Very Good	Excellent	Perfect
RV/tent camping	1	3	17	35	34	11
Sightseeing	0	5	19	29	29	19
Picnicking	0	0	22	28	44	6
Fishing	3	8	24	33	28	4
Power Boating	0	2	17	27	47	7
Water skiing	0	14	5	43	35	3
Sailing	0	10	17	23	40	10
Jetskiing/PWC use	7	3	19	32	32	3
Kayaking/canoeing/etc	0	25	0	25	50	0
Sunbathing/swimming	3	6	15	27	40	10
Mtn./road bicycling	0	0	20	20	40	20
Hiking/walking	0	4	30	39	17	9
Caving/rock climbing	0	0	60	20	20	0
Rest stop use	0	0	20	0	60	20
Other/relaxation	0	7	13	13	47	20

Most anglers enjoyed their fishing experience with 85 percent of respondents indicating a rating of good to excellent. Eleven percent of respondents said that their experience was only poor to fair.

Those engaged in motorized water sports tended to enjoy their particular activities as well. Power boaters rated their main activity high with 98 percent saying their experience was good or better, most (47 percent) indicating it was excellent. Water skiers indicated that their experience was quite good also, but not as good as power boaters in general with 86 percent indicating a good or better experience. Most of these responses (78 percent) were rated as very good to excellent; however, 19 percent indicated their experience as only fair to good. Jetskiers/PWC users also indicated that their experiences were quite good with 90 percent indicating a good or better experience; however, 10 percent indicated only a poor or fair rating.

Visitors who indicated sailing as their main activity also tended to be quite pleased with their experience. A 90 percent rating of good (or better) was received by respondents and half (50 percent) said that their experience was excellent to perfect. A small percentage (10 percent), however, had only a fair experience. Other non-motorized boaters, including kayakers, canoeists, and rafters, also tended to have a good experience. Three out of 4 respondents (75 percent) indicated that they had a very good to excellent experience. At the same time, 1 out of 4 respondents (25 percent) indicated that they only had a fair experience at Yale Lake.

Sunbathers and swimmers were generally pleased, with 91 percent indicating that they had a good to perfect experience. Only 9 percent of respondents indicated that their experience was poor to fair, possibly due to weather conditions.

Other non-motorized activities also rated well as main activities. Few mountain/road bikers (5) and hikers/walkers (23) indicated that their main activity was 1 of these 2 categories of sports; however, those that did indicated that they were generally pleased with their experience. All (100 percent) of the mountain/road bikers and most (96 percent) of the hikers and walkers indicated a good or better experience. All (100 percent) of the cavers and rock climbers indicated that they had a good to excellent experience, most (60 percent) having a middle rating of good. These experiences would have occurred outside of the immediate Yale Lake area, probably at Ape Cave or Lava Canyon.

Few persons (5) indicated that their main activity was visiting a rest stop; however, those that did indicated that their experience was excellent to perfect (80 percent). PacifiCorp's newly constructed or modernized restrooms probably influenced this high rating.

Finally, those indicating that their main activity was "other," typically relaxation (write in), most (93 percent) responded that their experience was good (or better). Almost half (47 percent) responded that they had an excellent experience.

Overall Satisfaction by Timeframe - Most (95 percent) of the visitors surveyed indicated that they had a good (or better) experience while visiting Yale Lake. Two out of 3 respondents (67 percent) indicated that they had a very good to excellent experience and 9 percent indicated a perfect experience. These numbers are quite high, indicating a great deal of satisfaction. During the season, this high level of satisfaction did not diminish. Ratings of very good to excellent for each month of the season include: May (70 percent), June (66 percent), July (68 percent), August (69 percent), and September (66 percent). In addition, overall satisfaction did not tend to be significantly different between holiday and non-holiday weekends. This is indicated in the following percentage of visitors surveyed who noted a very good to perfect experience during the following timeframes: total non-holiday weekends (77 percent), as compared to Memorial Day weekend (79 percent), July 4 weekend (73 percent), and Labor Day weekend (77 percent).

Overall Satisfaction by Location - Visitors surveyed indicated that they were satisfied overall with each of the recreation sites. Ratings for very good to perfect experiences by location include: Beaver Bay Campground (79 percent), Cougar Camp (80 percent), Cougar Park (70 percent), Saddle Dam Campground (72 percent), and Yale Park (74 percent). Visitors surveyed were most pleased with Cougar Camp and Beaver Bay Campground, and to a lesser extent with the other 3 locations. Poor to fair ratings for each of these locations include: Beaver Bay Campground (3 percent), Cougar Camp (5 percent), Cougar Park (5 percent), Saddle Dam Campground (7 percent), and Yale Park (9 percent). Yale Park and Saddle Dam Campground have slightly more numbers of dissatisfied visitors as compared to the other 3 locations, but only by a few percentage points.

Visitor Perceptions of Crowding - Visitor perceptions of crowding at Yale Lake were ranked on a 7-point scale from not at all crowded to extremely crowded. For this summary, visitor responses were condensed to 4 general categories and are presented in [Table 3.3-13](#). Overall, about 2 out of 5 (41 percent) visitors surveyed felt not at all

crowded (or slightly above); about 1 out of 4 (28 percent) visitors surveyed felt slightly crowded (or slightly above), and 1 out of 4 (25 percent) visitors felt moderately crowded (or slightly above). A small percentage (6 percent) of visitors surveyed felt extremely crowded. Combined together, about 1 out of 3 (31 percent) visitors surveyed felt moderately to extremely crowded during their visit to Yale Lake. As expected, visitor perceptions of crowding increased with the occurrence of greater numbers of visitors during July and August. During these 2 months, those responding that crowding was moderate to extreme increased from the seasonal average of 31 percent to a higher 35 to 38 percent during these months. During the cooler months of May and June, those responding that crowding was moderate to extreme decreased from the seasonal average of 31 percent to a lower 16 to 24 percent during these months.

Table 3.3-13. Visitor perceptions of crowding at Yale Lake by month, 1996-97.

Category	Responses	Responses by Month (% rounded)				
		May	June	July	August	September
Not at all crowded	41	56	56	37	30	41
Slightly crowded	28	28	20	28	32	32
Moderately crowded	25	15	19	27	31	24
Extremely crowded	6	1	5	8	7	3

Visitor Perceptions of Crowding by Location - Perceptions of crowding vary from location to location as presented in [Table 3.3-14](#). Overall, survey respondents indicated that Saddle Dam (Campground and Day-Use Area) was perceived to be the most crowded of the 5 sites surveyed, while Yale Park was perceived to be the least crowded. Responses for the 3 remaining sites (Beaver Bay, Cougar Camp and Cougar Park) were less extreme.

Yale Park was perceived to be the least crowded site by survey respondents. About 3 out of 5 (61 percent) visitors surveyed indicated that Yale Park was not at all crowded, 1 out of 5 (20 percent) visitors indicated that it was slightly crowded, and only 1 out of 5 (19 percent) visitors indicated that it was either moderately or extremely crowded. This perception may be caused by a number of factors including: (1) visitors surveyed tended to launch from Yale Park and did not stay to witness crowded conditions, avoiding the peak periods; (2) visitors surveyed expected the main launch area to be crowded and were conditioned to this fact; (3) Yale Park is generally not crowded except for very warm or hot weekend days; and (4) during extreme peak conditions, visitors tended to not complete a survey form due to their other needs at the time.

Table 3.3-14. Visitor perceptions of crowding at Yale Lake by location, 1996-97.

Category and Location	Response (% rounded)
Not at all crowded:	
-Beaver Bay	39
-Cougar Camp	38
-Cougar Park	40
-Saddle Dam	32
-Yale Park	61
Slightly crowded:	
-Beaver Bay	31
-Cougar Camp	29
-Cougar Park	35
-Saddle Dam	24
-Yale Park	20
Moderately crowded:	
-Beaver Bay	24
-Cougar Camp	28
-Cougar Park	20
-Saddle Dam	34
-Yale Park	15
Extremely crowded:	
-Beaver Bay	6
-Cougar Camp	5
-Cougar Park	5
-Saddle Dam	11
-Yale Park	4

In contrast, visitors to Saddle Dam indicated that this site was perceived as being more crowded than the other sites. This site had the lowest percentage (32 percent) of responses for being not at all crowded and the highest percentage (11 percent) of responses for being extremely crowded. These responses may be due to: (1) the relative small size of Saddle Dam facilities (15 campsites; 1 ramp lane), (2) proximity to urban areas resulting in earlier occupancy, (3) noise generated by a larger number of jetskis/PWC and power boats, (4) lack of separation between some campsites, and (5) constrained circulation system and parking area.

In general, visitors perceive that the other 3 sites (Beaver Bay, Cougar Camp, and Cougar Creek) are fairly similar with regards to crowding. About 2 out of 5 (38-40 percent) visitors indicated that these 3 sites were not at all crowded; however, about 1 out of 3 (29-35 percent) visitors indicated that these sites were slightly crowded and about 1 out of 4 (20-28 percent) visitors indicated that the sites were moderately crowded. In total, about a quarter to a third (25-33 percent) of all visitors to these 3 sites felt that they were moderately to extremely crowded, a fairly high percentage. Occupancy levels discussed in the FTR confirm that these sites are well used and are operating at or above capacity levels during peak-use weekends and holidays.

Conflicts or Complaints About Other Visitors - About 3 out of 4 (71 percent) visitors surveyed indicated that they did not have any conflicts or complaints with other visitors at Yale Lake. However, despite having a relatively high satisfaction rating as previously

discussed, over 1 out of 4 (29 percent) visitors surveyed did have some conflict or complaint to report. These types of conflicts, for example, could have reduced a perfect trip to a very good or good trip. The top 5 complaint responses include:

- After hours disturbances, noise/lights 30 percent
- Uncooperative neighboring campers 21 percent
- Off-leash pets causing problems 15 percent
- Improve/expand camping areas 05 percent
- Improve/expand boat launches 05 percent

By far, the biggest problem (30 percent) that visitors encountered, primarily by campers, was being disturbed at night after posted quiet hours. Visitors reported too much noise, glaring lights, and vehicles driving by that disturbed sleep. Occasionally, parties kept nearby campers awake. Camp hosts sometimes addressed this problem and sometimes not. Visitors desired more restrictions and adequate enforcement to deal with this apparently common problem.

Similar to the noise problem, about 1 out of 5 (21 percent) campers experienced uncooperative neighboring campers. Problems reported include the use of foul language, parties and loud music, rudeness, and drunkenness. The lack of separation between some campsites and the generally high occupancy rates at campgrounds may exacerbate the problem. Also, high numbers of people at each site can increase conflicts between camping groups.

About 15 percent of the respondents reported problems with pets, particularly off-leash dogs. Problems reported include loud barking, wandering through campsites, and defecating in public areas, such as a beach, or in campsites. Current policy allows for pets if kept on a leash. Apparently, this rule is not always followed.

About 5 percent of respondents wanted more and/or improved campsites, while another 5 percent wanted more and/or improved boat launches.

As expected, the rate of complaints by respondents increased with campground occupancy rates. More visitors complained during the later 3 summer months which are more congested: May (26 percent) and June (22 percent) as compared to July (31 percent), August (30 percent), and September (44 percent, primarily Labor Day weekend). These later percentages indicate that about a third of all visitors have some complaints when occupancy levels are highest.

Complaints or conflicts by location are fairly consistent, except for Yale Park which is quite a bit lower. The percentage of complaint or conflict responses by location include: Beaver Bay (34 percent), Cougar Camp (31 percent), Cougar Park (25 percent), Saddle Dam (29 percent), and Yale Park (11 percent). Yale Park, which was perceived by respondents as being the least crowded, had the lowest percentage of complaints compared to the other sites surveyed. One out of 4 (25 percent) visitors surveyed offered complaints at Cougar Park, while about 1 out of 3 (29-34 percent) visitors surveyed offered complaints at Beaver Bay, Cougar Camp, and Saddle Dam.

Visitor Perceptions of Facility Condition - Visitors were asked to rank the overall condition of facilities using a 6-point rating system. In general, survey respondents rated the condition of facilities favorably, including: poor (1 percent), fair (4 percent), good (19 percent), very good (34 percent), excellent (34 percent), and perfect (8 percent). Combining categories, 95 percent of respondents indicated that facilities were good (or better). Of this total, 2 out of 3 (68 percent) respondents rated the facilities at very good or excellent, a very positive rating. Ratings on a month-to-month basis did not change significantly and remained close to the seasonal average, indicating that facility condition remains good throughout the season due to proper maintenance.

On a site-by-site basis, visitor perception of facility condition varied somewhat. All sites rated comparatively well, with the exception of Cougar Park which rated lower. Cougar Camp located nearby is the top-rated site. Ratings of very good to perfect by site include: Beaver Bay (75 percent), Cougar Camp (82 percent), Cougar Park (50 percent), Saddle Dam (71 percent), and Yale Park (75 percent). Half of the visitors surveyed at Cougar Park rated the condition of facilities as poor to good, with most of these responses (75 percent) falling into the good category. While still a respectable rating, the older facilities at Cougar Park may have reduced the rating. Cougar Camp, located across Cougar Creek, may have scored higher in this category because of its better campsites with more vegetation, open views, ample shoreline access, and new restrooms and firewood sales area. In general, however, all sites except Cougar Park scored well with 3 out of 4 respondents (71-82 percent) or more indicating that a site's condition was very good (or better).

Additional Facilities Desired at Yale Lake - Visitors to Yale Lake were asked if any additional recreation facilities should be provided. Over half (53 percent) of those surveyed indicated that they desired additional facilities. Top rated requests include:

- Expand or improve restrooms, such as adding more showers, hot water, mirrors, and changing rooms (15 percent).
- Expand camping areas, improve the campsites, and provide more lakeside camping opportunities (11 percent).
- Add additional moorage, such as more docks, tie-ups, evening moorage, sailboat access, and dredging (9 percent).
- Provide new and improved playground equipment (9 percent).
- Expand boat launch areas, improve ramps and docks, provide more tie-ups, and deepen the launch sites (8 percent).
- Provide boat and jetski/PWC rentals (7 percent).
- Provide expanded sporting opportunities such as ball courts and fields and horseshoe pits (4 percent).

- Provide improved beach access with more swimming areas and sandy beaches (4 percent).
- Provide more electrical outlets and hookups (3 percent).

Visitor Destination Habits - Visitors to Yale Lake did not always remain at Yale Lake during their visit. Visitors were asked if they planned to visit other recreation areas during their trip other than Yale Lake. Over half (55 percent) of those surveyed said that they would remain solely at Yale Lake during their visit. The remaining respondents (45 percent) indicated that they had plans to visit or have already visited other locations during their trip. This split points to the dynamic nature of recreation use along the Lewis River corridor with multiple destinations and attractions.

Other primary destinations listed by visitors surveyed included the Monument, GPNF, Lake Merwin, and Swift Reservoir. A small number of respondents (3 percent) listed other primary destinations including the town of Cougar, Merrill Lake, Lewis River Falls, and the Siouxon. Of those responding that they have or would visit other areas, most (34 percent) listed the Monument as their primary destination. This high percentage is not surprising due to the proximity of the Monument to Yale Lake, including several site attractions such as Windy Ridge, Ape Cave, Lava Canyon, and other destinations. Other primary destinations identified by those surveyed include the GPNF (15 percent) which surrounds the project area, and PacifiCorp's Lake Merwin (19 percent) and Swift Reservoir (17 percent).

Monument and GPNF visitors had similar habits. Most visitors going to the Monument did so during August and September and almost half (47 percent) were surveyed at Beaver Bay Campground, an RV campground nearest the Monument. The second largest group (33 percent) of Monument visitors were surveyed at Cougar Camp, a tent-only campground being the next closest campground to the Monument. Visitors to the GPNF had similar habits, tending to visit the GPNF during the warmer months (June through August) and going to Beaver Bay Campground (54 percent) and Cougar Camp (26 percent) more often than the other 3 Yale Lake sites.

Visitors to Lake Merwin and Swift Reservoir had somewhat different habits. Visitation to Lake Merwin tended to peak during the warmest months (July and August), while Swift Reservoir visitation tended to be fairly constant during the survey period. This pattern may be caused by Lake Merwin's more urbanized orientation with a greater focus and use of motorized water craft, such as power boats and jetskis/PWC, compared to Swift Reservoir's emphasis on fishing which is less dependent on warmer weather conditions. Visitors whose primary destination was Lake Merwin were surveyed more often at Beaver Bay (37 percent) and Saddle Dam (26 percent). The high percentage of visitors at Saddle Dam is not surprising because of its proximity to nearby Cresap Bay and Lake Merwin; however, Beaver Bay is located farthest away from Lake Merwin. Its higher percentage may be explained by its larger capacity and RV campsites. Visitors whose primary destination was Swift Reservoir were surveyed more often (51 percent) at Beaver Bay, with Cougar Camp (16 percent) and Saddle Dam (17 percent) seeing similar visitation.

Camping

Several questions were asked of campers at Yale Lake who were surveyed at any of the 5 developed sites. The results are summarized in 7 categories including:

- Annual campground visits
- Difficulty in finding campsites
- Interest in an expanded reservation system
- Factors in choosing a campsite
- Camping fee preference
- Boat launching disturbances at campgrounds
- Desired improvements at campgrounds

Annual Campground Visits - Visitors were asked how many times they visited Yale Lake campgrounds per year. About 3 out of 4 respondents (77 percent) visited Yale Lake campgrounds 1 to 5 times per year and about 1 out of 4 visitors (23 percent) came more than 6 times per year. Some visitors (13 percent) were frequent recreationists at Yale Lake coming more than 10 times per year.

Beaver Bay, Cougar Camp, and Cougar Park had similar (82-88 percent) visitation rates, with respondents indicating that they visited Yale Lake 1 to 5 times per year. At Saddle Dam and Yale Park, however, there was more of a mix of visitation rates observed with more frequent visits. Saddle Dam visitation rates include: 1 to 5 times per year (58 percent), 6 to 10 times (14 percent), and over 10 times (28 percent). These visitation patterns are likely due to the proximity of Saddle Dam to the Vancouver/Battle Ground metropolitan area to the south and the SR 503 spur. Yale Park, the only site that is open year round, was similar to Saddle Dam with visitation rates of: 1 to 5 times per year (52 percent), 6 to 10 times (17 percent), and over 10 times (31 percent).

A series of questions related to camping were also asked of visitors to Yale Lake recreation sites. Almost 4 out of 5 respondents (78 percent) filled out these camping questions.

Difficulty in Finding Campsites - Finding an available campsite was difficult for many visitors, especially in July and August, the 2 peak use months. Visitors to campgrounds and day-use areas were asked during their stay at Yale Lake if it was difficult to find an available campsite. Over half (54 percent) of those surveyed responded that it was difficult or somewhat difficult to find a campsite during the survey period. Of these visitors, 30 percent said it was difficult and 24 percent said it was somewhat difficult during the season. As expected, those indicating that it was difficult or somewhat difficult to find a campsite increased during the peak July and August months. During these 2 months, about 2 out of 3 (63-67 percent) visitors indicated it was difficult or somewhat difficult finding a campsite. Of this group of respondents, 44 percent indicated it was difficult in August and 35 percent in July. Responses to difficulty in finding a campsite by campground at Yale Lake are presented in [Table 3.3-15](#).

Table 3.3-15. Difficulty in finding a campsite at Yale Lake during the recreation season by site surveyed, 1996-97.

Categories	Responses (% rounded) by Site Surveyed				
	Beaver Bay	Cougar Camp	Cougar Park	Saddle Dam	Yale Park
Not difficult	49	41	58	44	52
Somewhat difficult	27	25	16	19	16
Difficult	24	34	26	37	32

About half (49-58 percent) of the visitors surveyed at Beaver Bay, Cougar Park, and Yale Park indicated that it was not difficult to find a campsite, with Cougar Park visitors indicating the least (58 percent) difficulty. About a third (32-37 percent) of the visitors surveyed at Cougar Camp, Saddle Dam, and Yale Park indicated the most difficulty finding a campsite.

Interest in an Expanded Reservation System - Visitors are mixed in their desire to see an expanded campsite reservation system implemented by PacifiCorp. Visitors to Yale Lake were asked if they would like to see the existing holiday (Memorial Day weekend at Cougar Camp only) and group campsite reservation system at Yale Lake expanded. Of those responding, about a third (35 percent) indicated that they did not want to see the existing reservation system expanded, while 26 percent of the visitors were somewhat interested and 39 percent were interested. Totaling the last 2 categories, it would appear that about 2 out of 3 visitors (65 percent) would like to see some increased form of reservation system implemented at Yale Lake. However, there is no clear indication of a desire for a full reservation system at this time. As expected, the desire for an expanded reservation was greatest during the peak use months of July and August. Survey respondents' interest for an expanded reservation system by site surveyed is presented in [Table 3.3-16](#).

Table 3.3-16. Interest in expanding the existing campsite reservation system at Yale Lake during the recreation season by location by site surveyed, 1996-97.

Categories	Responses (% rounded) by Site Surveyed				
	Beaver Bay	Cougar Camp	Cougar Park	Saddle Dam	Yale Park
Not interested	41	30	29	29	30
Somewhat interested	26	27	29	24	26
Interested	34	42	41	47	43

The most visitors not interested (41 percent) in an expanded reservation system were found at Beaver Bay, while all other sites had similar levels of non-interest (29-30 percent). Similarly, visitors at all 5 sites were somewhat interested in roughly the same proportion (24-29 percent). Conversely, interest level in an expanded reservation system was least at Beaver Bay (34 percent) and roughly the same for all other sites (41-47 percent).

Factors in Choosing a Campsite - The importance of various factors to Yale Lake visitors when choosing a campsite differed depending upon the factor considered. Fourteen

factors were listed in the survey form and visitors were asked to rank them on a 5-point scale. Visitor preference for each of these factors is presented in [Table 3.3-17](#).

Table 3.3-17. Visitor preferences when choosing a campsite at Yale Lake, 1996-97.

Category	Responses (% rounded) by Site Surveyed				
	Not at all Important	Somewhat Important	Important	Somewhat Very Important	Very Important
Distance from a boat ramp	46	12	20	12	10
Distance between campsites	5	4	21	28	43
Camping within view of the lake	7	12	31	24	27
Quality of the surrounding scenery	2	3	20	31	45
Noise in the campground	4	6	23	23	44
Picnic facilities	14	13	33	25	15
Quality of rest rooms and showers	2	3	11	26	59
Availability of drinking water	3	3	16	27	52
Availability of electrical hookups	47	12	20	7	15
Convenient garbage cans and pickup	6	11	31	28	25
Adequate RV parking and pull-through space	45	9	13	14	19
Distance to a swimming area	15	16	34	21	15
Availability of a sewage dump station	54	11	12	10	13

The most important factors (rated very important in Table 3.3-17) to Yale Lake campers when selecting a campsite are:

- Quality of rest rooms and showers (59 percent)
- Availability of drinking water (52 percent)
- Quality of the surrounding scenery (45 percent)
- Noise in the campground (44 percent)
- Distance between campsites (43 percent)

The first 2 items listed above were very important to Yale Lake campers and are generally in abundance. The high visitor satisfaction ratings previously discussed tend to confirm the notion that PacifiCorp is doing a very good job of providing quality restrooms and drinking water facilities. Most of its restroom facilities are new and are of quality design and construction. Future campground facility decisions should continue to consider these important factors. In addition, the scenic quality of campsites should be a major consideration in future decision making, not just how many campsites are provided.

Noise is a growing concern within campgrounds, particularly during peak use periods. Campers actively seek out what they hope will be quieter campsites. When their decisions do not result in quiet camping trips, conflicts and complaints may result.

Complaints about noise, as previously discussed, should be taken seriously. Finally, in relation to noise levels and scenic quality, campers actively seek out campsites that are not crowded and allow for buffering between sites. This buffering reduces noise conflicts and improves the scenic quality of the campground. Some existing campsites at Beaver Bay and Saddle Dam, for example, have minimal site separation. Consideration should be given to improving campsite design and layout at some locations to meet camper expectations.

The least important factors (rated not at all important in Table 3.3-17) to Yale Lake campers when selecting a campsite are:

- Availability of a sewage dump station (54 percent)
- Availability of electrical hookups (47 percent)
- Distance from a boat ramp (46 percent)
- Adequate RV parking and pull-through space (45 percent)

These conclusions, except for distance from a boat ramp, relate to RV camping. Respondents may feel that existing RV campsites are adequate and/or campers surveyed may be tent campers and do not desire these types of facilities. Distance from a boat ramp was also a less important factor to campers surveyed. Existing launch facilities are generally close to campsites; therefore, this is not a perceived problem for Yale Lake campers. It should be noted, however, that while a high percentage of campers did not feel that these factors were important to them, a significant percentage of campers (35-42 percent) rated these factors as important, somewhat very important, or very important.

Other important factors (mid-range responses including somewhat important, important, and somewhat very important ratings in Table 3.3-17) to Yale Lake campers when selecting a campsite are:

- Picnic facilities (71 percent)
- Distance to a swimming area (70 percent)
- Convenient garbage cans and pickup (69 percent)
- Camping within view of the lake (61 percent)

These factors generally relate to convenience and are fairly important to campers; however, they are not necessarily critical to their overall satisfaction. Coupled with other positive responses, however, they remain important considerations in decision making about existing and future campsites.

Camping Fee Preferences - Camper opinions on fees charged were varied, with more positive responses than negatives ones. Campers were asked if they felt that camping fees were okay, too high, or too low. Almost 2 out of 3 visitors (63 percent) surveyed indicated that camping fees were okay. Alternatively, about 1 out of 3 visitors (36 percent) surveyed felt that the fees were too high. A small percentage (1 percent) of visitors felt that the fees were too low. It is interesting to note that this question was asked at a time when campsite fees were recently raised significantly to be in line with fees charged by state agencies for comparable campsites. The majority of visitors

surveyed apparently felt that the fees charged were fair, particularly given the location next to a major reservoir and recreation area. The negative responses received may have been in reaction to the recent raise in fees or a desire or need for additional no/low cost camping opportunities.

Campers indicating that the campground fee schedule was okay differed somewhat by site surveyed; however, they were all greater than 50 percent positive. Positive opinions by site include: Beaver Bay (66 percent), Cougar Camp (64 percent), Cougar Park (56 percent), Saddle Dam (52 percent), and Yale Park (61 percent). Saddle Dam campers were the least satisfied (52 percent) with the fee schedule when compared with the other sites, potentially due to the type or condition of campsites currently being provided at this site.

Boat Launching Disturbances at Campgrounds - Due to the proximity of boat launches to campsites at the 3 campgrounds, campers were asked if boat launching was disturbing their camping experience. An overwhelming majority (90 percent) indicated that they were not being disturbed by this activity. A small group of campers (6 percent) indicated that they were slightly disturbed by boat launching. Only a very small percentage of visitors (6 percent) at Beaver Bay were either disturbed or slightly disturbed by boat launching. This is interesting to note since access to the launch site at Beaver Bay requires driving through the entire campground to get to the ramp, yet almost all (94 percent) of the campers were not disturbed.

Desired Improvements at Campgrounds - Yale Lake campers were asked if they desired any new improvements. As a result, 2 out of 3 visitors surveyed (67 percent) indicated that they had a desire to see some improvements. Overall response varied somewhat by site surveyed: yes responses by site include Beaver Bay (69 percent), Cougar Camp (65 percent), Cougar Park (56 percent), Saddle Dam (75 percent), and Yale Park (44 percent). The lowest response for desired improvements occurred at Yale Park (44 percent), while the highest was at Saddle Dam (75 percent). The high response rate at Saddle Dam points to a number of desired improvements at that site. These and other desired improvements, on a site-by-site basis, are presented in Tables 3.3-18 through 3.3-22.

Desired improvements at Beaver Bay focus on improving the restrooms, specifically the showers which received numerous complaints, and improving individual campsites by providing more vegetation and buffer and adding more campsites. Improved enforcement of quiet hours was mentioned. Other facility improvements include the playground, boat launch, swim and beach area, and access roads. Some RV campers desired utility hookups. These and other desired improvements are listed in [Table 3.3-18](#) below.

Table 3.3-18. Desired improvements at Beaver Bay Campground, 1996-1997.

Desired Improvement (# comments)	“Yes” Responses
Improved showers (cleaner, closer, better, more, temp. and pressure control, add mats, and better maintenance) (38)	15%
Improve campsites by providing better vegetation and screening of campsites, more grass in tent areas, and more and bigger sites (36)	14%
Improved restrooms (more, bigger, better maintenance, upgrades, hotter water, supplies, ADA access) (26)	10%
Provide improved playground (17)	7%
Provide electricity to sites (15)	6%
Improve the boat launch (11)	4%
Provide full RV hookups (9)	4%
Provide or improve access to firewood (8)	3%
Provide improved water faucets and drains (8)	3%
Provide improved security, enforcement of quiet hours (8)	3%
Provide a better swim area (sand, cleaner water) (7)	3%
Pave the roads to reduce dust, provide ADA access (7)	3%
Provide a fish cleaning station (6)	2%

Similar to Beaver Bay, desired improvements at Cougar Camp also focus on improving the restrooms, specifically the showers, and improving individual campsites by providing more vegetation and buffer and adding more campsites. Other facility improvements include the boat launch, swim and beach area, parking, trails, and signs. Improved enforcement of quiet hours was mentioned. Some campers called for greater restrictions on boat/jetski/PWC use. These and other desired improvements are listed in [Table 3.3-19](#).

Very few desired improvements at Cougar Park were mentioned. Of those related to this day-use area, a few visitors desired better maintenance of the restroom/shower facility. These comments are also presented in [Table 3.3-20](#).

Five principal desired improvements were mentioned by visitors at Saddle Dam (Campground and Day Use Area). The majority (56 percent) of comments received focused on needs at the boat launch area. Like the other campgrounds, visitors desired better campsites with more trees, vegetative buffer, and separation. Some visitors mentioned the need to better enforce the No Wake Zone for boats, specifically jetskis/PWC, in and around the swim area and launch. These comments are presented in [Table 3.3-21](#).

Few visitors identified any desired improvements at Yale Park. Of those that did, additional space was desired. These comments are presented in [Table 3.3-22](#).

Table 3.3-19. Desired improvements at Cougar Camp, 1996-1997.

Desired Improvement (# comments)	“Yes” Responses
Improve campsites by providing better vegetation and screening of campsites, more grass in tent areas, and more and bigger campsites (28)	28%
Improved restrooms (more, bigger, better maintenance, upgrades, hotter water, supplies, ADA access) (27)	27%
Improved showers (cleaner, closer, better, more, temp. and pressure control, add mats, and better maintenance) (12)	12%
Improve the boat launch (11)	11%
Restrict jetskis/PWC and boats (7)	7%
Enforce quiet hours (6)	6%
Provide electricity at campsites (4)	4%
Provide more parking at campsites (3)	3%
Provide firewood (3)	3%
Provide improved beaches and swim areas (3)	3%
Sign the trail to the restroom (3)	3%

Table 3.3-20. Desired improvements at Cougar Park, 1996-1997.

Desired Improvement (# comments)	“Yes” Responses
Cleaner restrooms (3)	38%
More campsites in the area (2)	25%

Table 3.3-21. Desired improvements at Saddle Dam Campground, 1996-1997.

Desired Improvement (# comments)	“Yes” Responses
Improve the boat launch ramp and dock (replace, extend, deepen, improve, and maintain) (38)	56%
Provide more and better campsites, increase distances between sites, add screening, add more grass and trees (16)	24%
Improve and enforce the No Wake Zone (near dam, swim area, launch) (4)	6%
Provide additional parking (3)	4%
Provide a playground (3)	4%

Table 3.3-22. Desired improvements at Yale Park, 1996-1997.

Desired Improvement (# comments)	“Yes” Responses
More natural area, open space, and quiet area (3)	50%
Expand the available area (2)	33%

Fishing

Several questions were asked of anglers at Yale Lake. The results are summarized in 3 categories including:

- Lake level disturbance to fishing
- Importance of factors to fishing
- Type of fishing

Lake Level Disturbance to Fishing - Anglers at Yale Lake were asked if the pool level possibly affected their fishing experience. Most anglers (85 percent) on the lake responded that the pool level did not affect their fishing experience. Approximately 15 percent of anglers surveyed, however, responded that they were affected. Most of those who were affected were surveyed at the north and east end of the lake at Beaver Bay (21 percent) and Cougar Camp (21 percent). Of the 42 anglers who indicated that they were affected by pool level, primary responses include: the water was too shallow, too low, or there was no beach (35 percent); there was too much debris in the water or the water was too murky (18 percent); and no fish were caught due to the low or high pool level (21 percent).

Importance of Factors to Fishing - Anglers were asked about the importance of 4 factors relative to fishing (landing fish, seeing or hooking fish, water level of the lake, and proximity to other anglers) using a 5-point scale. Most anglers believed that landing a fish was important to their fishing experience. Only 16 percent of anglers surveyed indicated that landing a fish was not at all important to somewhat important. More than 4 out of 5 anglers surveyed (84 percent) felt that landing a fish was important to very important. Seeing or hooking a fish was similarly important to anglers, with only 12 percent indicating that this factor was not at all important or somewhat important.

Anglers also were asked about the importance of the pool level. About 2 out of 5 (42 percent) anglers felt it was an important (mid-range) factor. However, an almost equal number felt that this factor was less important (28 percent) versus more important (29 percent) to their fishing experience.

More important to anglers was proximity to other anglers. Over half (53 percent) of anglers surveyed felt that proximity was somewhat very important to very important.

Type of Fishing - Anglers were asked if they were wading or bank fishing, boat fishing, or both boat and bank fishing while at Yale Lake. Two out of 5 (40 percent) anglers were wading or bank fishing only. About 1 out of 3 (32 percent) anglers were boat and bank fishing. The remainder (28 percent) were boat fishing only. Most (46 percent) wading or bank anglers were surveyed at Beaver Bay. Most boat-only anglers were surveyed at Yale Park (43 percent) and Beaver Bay (33 percent). Most boat and bank anglers were surveyed at Beaver Bay (56 percent) and Cougar Camp (21 percent).

Boating/Jetskiing/PWC Use

Several questions were asked of boaters and jetski/PWC users at Yale Lake. The results are summarized in 4 categories including:

- Boating problems due to pool level
- Importance of factors to boaters
- Launch ramp waiting
- Boater shoreline activities

Boating Problems Due to Pool Level - Visitors were asked if the pool level of the reservoir affected their boating experience while at Yale Lake. Most (70 percent) surveyed indicated that the pool level did not cause any boating problems during their stay at Yale Lake. The remainder (30 percent) indicated that they did experience problems because of the pool level. Most of these respondents were surveyed at Beaver Bay (32 percent) and Cougar Camp (32 percent). It should be noted that the survey was conducted primarily during the peak season when the pool level is high. As a result, this response is biased to that timeframe. If ramps were dewatered during the peak season, more complaints could be expected.

Of those surveyed who felt they did experience a boating-related problem because of the pool level, 8 primary responses were given (some boaters gave more than 1 answer) and are presented in [Table 3.3-23](#). The most notable problem was difficulty launching boats during low pool and related ramp problems such as the ramp being too short. Most of these comments were provided by boaters surveyed at Saddle Dam (53 percent) and Cougar Camp/Park (41 percent).

Table 3.3-23. Perceived problems reported by boaters at Yale Lake due to pool level, 1996-1997.

Category (# responses)	Response (% rounded)
Difficult to launch a boat during low pool, had ramp problems (34)	33%
Water level was too low, caused general undefined boater problems (16)	15%
Worried about boat hitting submerged rocks, stumps, and logs (11)	11%
Floating debris was a boating hazard, increased by high pool level (11)	11%
Lack of safety markers present to identify hazards at low pool level (7)	7%
High pool level affected the use of the shoreline, there was no beach (7)	7%
Boat propeller or other boat damage caused by low pool level (7)	7%
Too many stumps, stumps are a big hazard at low pool level (6)	6%

About 15 percent of the boaters who had problems cited general undefined problems with the low pool level. Another 21 percent of boaters who had problems were worried about hitting submerged rocks, stumps, or logs and/or hitting floating debris. These comments were mostly (50 percent) reported by boaters at Beaver Bay.

Importance of Factors to Boaters - Boaters were asked to comment on the importance of 4 boating/jetskiing/PWC use factors using a 5-point scale. These 4 factors include: water level of the lake, number of other water craft, speed of other water craft, and waiting time

at the boat launch. Out of 541 responses, most (84 percent) boaters surveyed felt that the lake water level was important to very important to their experience. Only 16 percent of boaters responded that water level was not at all important to somewhat important. One out of 5 (21 percent) respondents felt that it was very important.

A similar response was given by boaters when asked about the importance of the number of other water craft on the lake. Out of 420 responses, most (82 percent) boaters surveyed felt that the number of other water craft on the lake was important to very important; 18 percent felt that this factor was not at all important to somewhat important; and 21 percent felt this factor was very important.

Boaters felt that waiting time at the ramp was an important factor; however, it was not as significant as water level or the number of other boats on the lake. Out of 417 responses, most (30 percent) responses fell in the middle of the 5-point scale. One out of 3 (33 percent) boaters felt that ramp waiting time was not at all important or somewhat important. Alternatively, only 17 percent of boaters felt that it was a very important factor.

Boaters tended to respond more urgently when asked if the speed of other water craft on the lake was an important factor. Out of 419 responses, over half (51 percent) of the boaters surveyed felt that water craft speed was very important or somewhat very important; 28 percent felt that it was important; and 22 percent felt that it was not an important factor to consider.

Other responses (write-ins) given by boaters as other possible factors to consider include: debris in the water or at the ramps (7 responses), need to restrict jetskis/PWC (6 responses), good boat ramps and docks (4 responses), boater safety and courtesy (4 responses), and moorage and anchorage areas (4 responses).

Launch Ramp Waiting - Boaters were asked if they had to wait to launch their water craft while at Yale Lake; and if yes, how long did they have to wait. About 2 out of 3 boaters (69 percent) reported that they did not have to wait at all to launch. Boater responses indicating no ramp waiting were fairly consistent at each site surveyed (27-32 percent), except for Saddle Dam which had a low percentage (12 percent) indicating 2 to 3 times more waiting at this ramp.

Of those boaters indicating that they did have to wait at the ramp to launch (31 percent), most (36 percent) boaters reported having to wait only a short while (1-5 minutes). Other responses include: 5-10 minute wait (29 percent), 10-15 minute wait (16 percent), 15-20 minute wait (6 percent), and a wait greater than 20 minutes (12 percent).

As an indication of the degree of waiting time at each ramp site, the percentage of boaters waiting 10 minutes or more include:

- Beaver Bay 25 percent
- Cougar Camp/Park 33 percent

- Saddle Dam 44 percent
- Yale Park 0 percent

Boaters waiting 15 minutes or more to launch at ramps include:

- Beaver Bay 13 percent
- Cougar Camp/Park 0 percent
- Saddle Dam 17 percent
- Yale Park 0 percent

As expected, Saddle Dam and Beaver Bay which have the smallest ramps (1 lane each) have the longest waiting times.

Boater Shoreline Activities - Boaters were asked about their shoreline use habits while at Yale Lake. One out of 4 (25 percent) boaters indicated that they did not go ashore while boating. Of the remaining 75 percent of boaters who did go ashore, 8 primary shoreline activities were noted:

- Shoreline swimming and sunbathing 27 percent
- Shoreline picnicking 25 percent
- General hiking or walking 23 percent
- Using the shoreline while water skiing 12 percent
- Shoreline fishing 9 percent
- Using the shoreline while riding jetskis/PWC 8 percent
- Shoreline overnight camping 2 percent
- Using rest rooms/toilets 2 percent

The 3 shoreline activities mentioned most often by boaters include swimming and sunbathing (27 percent), picnicking (25 percent), and hiking or walking (23 percent). A particularly low response was identified for shoreline campers, which may be a result of the survey methodology since visitors to dispersed camping sites were not specifically surveyed.

General Visitor Information

Two logistical questions were asked of all visitors at Yale Lake related to party size and the origin of visitors. The results are presented below.

Visitor Party Size - Visitors were asked to indicate the size of their party. Average party sizes at Yale Lake include:

- 1 to 2 persons 20 percent
- 3 to 4 persons 30 percent
- 5 to 6 persons 22 percent
- 7 to 8 persons 8 percent
- 9 to 10 persons 8 percent

- 11 to 15 persons 5 percent
- 16 to 20 persons 3 percent
- 21 to 50 persons 2 percent
- >50 persons 2 percent

About 3 out of 4 (72 percent) parties include up to 6 people, with about half (52 percent) of the parties having only 3 to 6 persons. One out of 5 (20 percent) parties are quite small with 1 or 2 people only, and very large groups (over 50 people) accounted for 2 percent of the parties surveyed (group sites).

Origin of Visitors - Visitors were asked to identify the postal Zip Code of their primary residence. A summary of the results is presented in [Table 3.3-24](#). Almost all (97 percent) of the visitors to Yale Lake reside in either Washington State or Oregon.

Table 3.3-24. Visitor origin of Yale Lake recreationists, 1996-1997.

Major Origin of Visitor	County of Origin	Percent (rounded)
Washington State	Subtotal	68
	Clark	43
	Cowlitz	14
	King	4
	Thurston	2
	Pierce	1
	Klickitat	1
	Snohomish	1
	Other Counties	2
Oregon	Subtotal	29
	Multnomah	17
	Washington	5
	Clackamas	4
	Clatsop	1
	Columbia	1
	Yamhill	1
	Other Counties	1
Other States		2
Outside the United States		1

Most visitors to Yale Lake did not drive far. Assessed at the county level, about 3 out of 4 visitors (73 percent) came from 3 local or nearby counties: Clark County, WA (43 percent) including Vancouver; Multnomah County, OR (17 percent) including Portland; and Cowlitz County, WA (14 percent) including Kelso/Longview.

About 2 out of 3 (68 percent) visitors to Yale Lake reside in Washington State. Most of these residents came from 2 local counties with major metropolitan areas along the I-5 corridor: Clark County (43 percent) and Cowlitz County (14 percent). Another group of

Washington residents who visited Yale Lake came from the Seattle/Tacoma metropolitan area and include about 5 percent of the total visitors.

Oregon residents make up the other major place of origin with 29 percent of the total visitation. Most of these residents came from the Portland metropolitan area: Multnomah County (17 percent), Washington County (5 percent), and Clackamas County (4 percent).