

## **Appendix A**

### **Lake Merwin and Swift Reservoir Survey Results**

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**Lewis River Hydroelectric Projects  
FERC Nos. 2111, 2213, 2071, and 935**

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## **LAKE MERWIN AND SWIFT RESERVOIR SURVEY RESULTS**

This document details both user count data and visitor survey results obtained from the Swift and Merwin Projects from 1998-2000. This information was previously presented as a section of the 1998 Lewis River Recreation Survey Results document, and has been extracted for use in this analysis.

### **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) and portions of the Kalama River Basin. The study area for the surveys included developed recreation sites adjacent to the three project reservoirs. 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, and other dispersed areas in the vicinity including the Lewis River above Swift Reservoir. Dispersed use of other areas in the vicinity of the Lewis River Projects is discussed in the Dispersed/Displaced Recreation Visitor Survey Results document.

### **Methods**

As part of their visits to various areas while distributing visitor surveys, field researchers counted the numbers of visitors engaged in various activities at reservoir campgrounds, day use sites, dispersed areas, and reservoir shorelines. The count log forms used to document activities were similar to those utilized in the 1996-97 Yale study. Upon arrival to the individual sites on survey dates, researchers counted numbers of visitors engaged in specific recreation activities at each of the sites. Data recorded included number of visitors boating, fishing, picnicking, swimming, relaxing, biking, hiking, hunting, using rest stops, horseback riding, windsurfing, and waterskiing. In addition, the numbers of vehicles (with and without trailers) were counted at boat ramp sites. Counts of RV versus tent campers were also made throughout the dispersed recreation sites. Campground occupancy was also tracked, with numbers of sites occupied counted and separated by RV, tent, and group site users.

### **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 for Lake Merwin and Swift Reservoir while on the reservoirs in a boat during the peak recreation season of 1998. Counts were conducted on the following dates:

- July 4 (holiday weekend)
- July 12 (non-holiday weekend)
- July 26 (non-holiday weekend)
- August 1 (non-holiday weekend)
- August 22 (non-holiday weekend)

Five lake boater counts were also conducted for Yale Lake while on the reservoir during the peak recreation season of 1996. Counts were conducted on the following dates:

- June 2 (non-holiday weekend)
- July 6 (July 4<sup>th</sup> 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 the reservoirs, as well as shoreline dispersed camping and day-use sites, from a PacifiCorp boat. The boat followed the shoreline perimeter of each waterbody, while observers recorded water craft and shoreline use. 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 each reservoir. Additional boat counts were conducted from the shoreline; the methodology is discussed below.

#### Recreation Activity and Use Area Counts

Peak Season. Peak season surveys (Memorial Day to Labor Day) consisted of detailed recreation user counts by vehicle/foot at all of PacifiCorp's developed facilities, as well as drive-in or boat-in dispersed use areas and sites. 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 site was visited 1 time daily (morning, mid-day, or late afternoon) during a daily survey period.

During the peak season, 1 weekend day was surveyed each week plus 6 holiday days (5 in the 1996 Yale study) totaling 18 days (19 days in the 1996 Yale Study) (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.

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 May and in September. These surveys occurred during weekend days by vehicle/foot. No boat surveys were conducted during this period. The survey route included all developed sites that were open as well as drive-in dispersed sites and use areas. 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.

The recreation visitor surveys was conducted to document attitudes and perceptions concerning the quality of the recreation experience at Lake Merwin and Swift Reservoir. An on-site/mailback survey technique was used due to the volume of visitor use and the need for an efficient and cost-effective survey. A pre-test of the survey instrument was conducted during the previous 1996-97 field season to assess survey procedures and the survey form. The recent survey form used was not changed significantly and additional questions added were tested elsewhere.

On predetermined survey dates, researchers arrived at each survey site and contacted one person from each group present. Timing of visitor contacts corresponded to periods of the day when visitors were more likely to be present at the sites. For example, sampling at day use sites occurred during mid-day and afternoon times, while campground sampling proceeded during the mornings and evenings. Researchers invited groups present to participate in the survey, explaining that the information gained from the survey was intended to help in the management of area recreation facilities. Visitors who agree to participate were encouraged to complete the survey form at that time. If visitors were reluctant to complete the survey form on-site, they were encouraged to participate by mailback survey and were offered a stamped, self-addressed envelope to return the completed survey form at a later time. Visitors who refused to participate were thanked for their time, and the researcher continued with other visitors present at the site. The number of visitors who agreed/refused to participate in the survey were documented by researchers in a log for determining in-person response rates at a later time. In addition, an attempt was made to contact visitors not present by leaving a survey form on their vehicles or picnic tables. Survey forms left in this manner included a stamped, self-addressed envelope for return of the completed survey. The dates and locations of these surveys were recorded on each form so that response rates for these surveys could be generated. Group reservation sites received 1 survey form per group visit. A reasonable response rate (25-40 percent) was expected, with a target sample size of approximately 1,500 useable surveys.

Each survey respondent was asked to complete a set of questions relating to their overall recreation experience while in the area, plus others pertaining to specific activities (camping, fishing, and boating/personal watercraft use) that they may have participated in during their visit to Merwin, or Swift reservoirs. 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, they were not interviewed again. Researchers kept track of these repeat offerings as part of the survey log.

The survey form was distributed at all PacifiCorp developed sites when open. Visitor survey dates occurred on the same dates that user counts were taken. This included 18 peak season days and 6 non-peak season days.

To facilitate data analysis, open-ended responses to questions were assigned to categories and entered into a computer database. After entry, tests were done to validate the data, and any unusual data were cross-checked against the original survey forms and corrected if needed. This information will be used with the user count data to better understand existing and future demand and recreation use in the study area.

### **Study Results**

The results from this study are detailed below, and represent data from both Lake Merwin and Swift Reservoir that were obtained simultaneously. Some comparisons are made with a similar Yale Lake study that was completed in 1996.

#### User Data

Campground Counts. During the dates that researchers visited the reservoir campgrounds at Merwin and Swift reservoirs, counts were made of the numbers of RV, tent, and group camps in each area. Table 1 presents aggregates of the 1998 season counts.

**Table 1. Campsite occupancy at Cresap Bay Campground and Swift Camp.**

Site	Average Total	High Counts	RV Count Range	RV Average	Tent Count Range	Tent Average	Group Range	Group Average
Cresap Bay	49.25	76	6-38	16	6-50	23.15	0-17	10.10
Swift Camp	48.85	92	2-54	16.5	0-70	32.35	na	na

At Cresap Bay Campground on Lake Merwin, the average number of sites occupied totaled just over 49, with a high of 76 sites counted on July 24. The counts of RVs at the site ranged between 6 and 38, while the range of tents ran from 6 to 50 at Cresap Bay. The average number of RVs during the survey dates was 16, while the average number of tents was higher, at just over 23. Separate sites in group camps ranged from 0 to 17 at Cresap Bay.

At Swift Camp on Swift Reservoir, the average number of campsites occupied was just under 49, with a high of 92 occurring on August 1. RV counts ranged from 2 to 54 at Swift Campground, while tents ranged from 0 to 70. The average number of RVs was 16.5 while the average of tents was just over 32. There is no group area at Swift Campground.

Day Use Area Vehicle Counts. Table 2 presents the number of vehicles counted by researchers on 20 weekend and holiday periods during the 1998 field season. The segments of the table show the average, low, and high counts for vehicles without trailers in the parking areas at boat launches, compared with those vehicles with boat trailers attached. The total average as well as the total highest numbers of vehicles counted are also included.

**Table 2. Day use area vehicle counts at Merwin and Swift reservoirs.**

Site	Total Vehicle Average	Highest Count	Vehicles Only			Vehicles w/ Trailer		
			Avg.	Low	High	Avg.	Low	High
Merwin Park	36.55	165	36.45	0	165	0.10	0	1
Speelyai Bay Park	63.25	245	25.30	0	130	37.95	6	150
Cresap Bay	39.79	200	17.94	0	70	26.53	0	130
Swift Camp	45.55	223	21.00	0	200	24.55	2	98
Eagle Cliff Park	4.45	14	4.40	0	12	0.05	0	1
Pine Creek Overlook	0.94	8	0.94	0	8	0.00	0	0

Three sites received the greatest amount of use: Merwin Park, Speelyai Bay Park, and Cresap Bay Day Use Area. The numbers of vehicles counted at Merwin Park ranged from 3 on rainy, cool days in May to 165 on a sunny, hot day in July. The average number of vehicles counted at Merwin Park was just over 36. There were seldom any vehicles at Merwin that had boat trailers. No boat launch is included at this site.

On 20 days of observation at the boat launch at Speelyai Bay Park, the average number of vehicles in the parking area was just over 63. The range for total vehicles ran from 7 to 245. Separated by those with and without trailers, vehicles with trailers averaged 25, with a range from 0 in the early season to 130 on September 6. Vehicles with trailers had an average count of 38, with a range from 6 on May 22 to 150 on September 6.

The average number of vehicles counted at Cresap Bay was just under 40, with a range from 0 to 200. The range for vehicles without trailers was from 0 to 70, while the range for those with trailers ran from 0 to 130.

Vehicle counts at Swift Camp averaged just over 45, with a range from 0 to 223. Vehicles only averaged 21, with a high of 200. Vehicles with boat trailers averaged about 25, with a range from 2 to 98.

Eagle Cliff Park, located where the Lewis River runs into Swift Reservoir, averaged about 5 vehicles on each of the survey dates, with a high number of 14 vehicles counted. Vehicles with no trailers were more common at Eagle Cliff Park, averaging 4.4 with a high of 12. Vehicles with trailers were only counted on 1 occasion.

Pine Creek Overlook seldom had any vehicles present when researchers arrived, with an average of less than 1 counted. The highest number of vehicles counted at this volcanic interpretation site was 8.

Day Use Area Activity Counts. As part of their stop at each day use area, researchers counted the number of visitors engaged in specific activities; the activities are presented in Table 3 below.

**Table 3. Day use area activity counts at Merwin and Swift reservoirs.**

Site	Average Counts								
	Picnic	Swim	Relax	Bike	Hunt	Rest	Equestrian	Windsurf	Waterski
Merwin Park	13.00	27.65	22.20	0.00	0.30	0.00	0.00	0.00	0.05
Speelyai Bay Park	8.70	16.90	17.40	0.00	0.00	0.10	0.00	0.00	0.60
Cresap Bay Day Area	5.24	37.82	15.18	0.47	0.12	0.00	0.00	0.00	1.12
Swift CG Day Area	1.20	7.95	4.85	0.40	0.00	0.00	0.00	0.05	0.05
Pine Creek Overlook	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Eagle Cliff Park	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The most common activities at Merwin Park were swimming and relaxing, with an average of 28 people swimming and 22 people relaxing for each day in the survey. The range of people swimming at Merwin Park ran from 0 in May until mid-June, to 140 on June 27. People relaxing at Merwin Park ranged from 0, early and late in the season, to 150 on August 2. Picnicking at Merwin Park was the next most common activity, with an average of 13 people on each survey date. The range of picnickers was from 0 up to 60 on September 6. The other activities listed at Merwin Park had generally very low levels of participation.

At Speelyai Bay Park, relaxing was the most common recreation activity visitors participated in, with an average of just over 17 on survey dates. The larger numbers occurred later in the season, with 95 people relaxing at Speelyai on September 6. Swimming was the next most common activity at Speelyai Bay Park, with an average of 17, and a high of 60 on August 2. An average of 9 visitors were observed to be picnicking at Speelyai Bay Park, and the largest number researchers observed was 40 on August 2. Similar to Merwin Park, the other recreation activities were not commonly observed at Speelyai.

Cresap Bay day use area was the most popular area for swimming at all survey sites, with an average of 38 people counted at beach areas on survey dates. The numbers of swimmers ranged from 0 early in the season to 120 on August 14. At Cresap Bay, people relaxing averaged 15, with a high of 50 on August 1. People picnicking at Cresap Bay averaged just over 5 participants, with a season high on August 1 of 20 people.

Few visitors were observed at Swift Campground Day Use Area, Pine Creek Overlook, and Eagle Cliff Park on survey dates.



Watercraft and Angler Counts. Table 4 summarizes counts of watercraft and anglers observed at developed recreation sites on Merwin and Swift reservoirs. At Merwin Park, researchers observed relatively low numbers of watercraft. Power boats were more commonly visible from shore than other types of boats, although their numbers remained small, with an average of 2.5, and 0 to 9 counted on survey dates. No personal watercraft (PWC), sailboats, or paddle craft were observed from the Merwin Park shore on survey dates. Bank angling was more likely to be observed at Merwin Park than fishing from a boat, with an average number of bank anglers at 2.4, and 1.3 anglers in boats. The range of shore fishing was higher early in the season, with 11 anglers bank fishing on May 16, and none after the first week of August. The largest number of boat anglers was counted on June 6, when 14 were observed.

**Table 4. Watercraft and angler counts from the shoreline at Merwin and Swift day use areas.**

Site	Watercraft on Water (Average)					Anglers (Average)	
	Power	Sail	PWC	Paddle	Inflate	Boat	Bank
Merwin Park	2.5	0.05	0.00	0.00	0.40	1.30	2.40
Speelyai Bay Park	4.6	0.05	2.50	0.35	0.30	1.25	0.65
Cresap Bay Day Area	8.29	0.12	3.47	0.00	0.29	2.53	0.53
Swift CG Day Area	4.10	0.25	1.30	0.15	0.15	2.00	0.65

Speelyai Bay Park had greater numbers of power boats counted by researchers, with an average of just under 5 counted each survey date. Numbers of power boaters ranged from 0 in May to 17 on September 6. PWCs were more commonly observed by researchers at Speelyai, with an average of 2.5, and a high of 8 counted on September 6. Sailing, paddling, and inflatable boating counts were very low. Bank angling was almost non-existent at Speelyai Bay, while an average of just over 1 boat with anglers was counted on survey dates. The largest number of boat anglers occurred on June 6 when 14 were counted.

Cresap Bay had the largest number of power boats visible from shore, with an average of over 8 counted on each survey date. The largest number of power boats was counted on May 25, when 19 were observed. PWC use was also more common at Cresap Bay, with just under 4 observed on each survey date. The largest number of PWCs observed at Cresap Bay occurred on July 18 when 8 were observed from shore. Similar to other day use areas, observations of sailing, paddling, and inflatable boats were low. Boat angling was more commonly observed at Cresap Bay, with an average of 2.5 observed during each survey date. The largest number was observed on the first survey date at Cresap Bay, with 24 boats counted and 8 bank anglers observed. Otherwise, bank angling was infrequently observed after this initial date.

At Swift Camp, the count of power boats averaged just over 4 on each date researchers visited the day use area. The greatest number of power boats counted from this point occurred on July 24 when 17 were observed. PWCs averaged just over 1 on each survey date, with a range from 0 to 5. Sailing, paddling, and inflatable boat use were very low at Swift Camp. Boat angling averaged 2 boats on each survey visit, with the largest number

at 6, counted on May 22, June 6, and July 18. Bank angling was infrequently observed at Swift Camp.

Shoreline Dispersed Site Counts and Boat Counts. Observations of recreational use of reservoir shoreline for day use and camping were collected on 5 days during the high use season in July and August 1998. As part of observing recreation use of the reservoir shorelines, a simple inventory of dispersed sites along the shoreline was conducted on the first of the 5 survey days. During this initial pass along the shores of each reservoir, campsites and areas used for day use were numbered, described, and mapped using orthographic maps provided by PacifiCorp. Also during the first survey date, the surface of the reservoir was divided into sections to facilitate recording of numbers of watercraft observed. Counts of boats on Swift and Merwin reservoirs were also made during the 5 survey trips, including types of watercraft, use levels, and distribution of boating use on sections of each reservoir.

Specific objectives of data collection included:

- Inventory of shoreline use and recommend shoreline management measures (if needed).
- Characterization and estimation of existing shoreline and boating use.
- Assessment of the mix of boat use and potential user conflicts.
- Assessment of boater densities in coves and areas of concentrated use.

Each reservoir was divided into survey segments that corresponded to geographic reference points recognizable from the reservoir surface (e.g., points of land, islands, coves, boat ramps). Individual segments, or use zones, were separated out as use areas to facilitate analysis of use spatially. Nine segments were delineated at Lake Merwin, (Sections A-I) while Swift Reservoir was divided into 11 segments (Sections A-K). During survey dates, recreation use of the reservoirs was observed from a PacifiCorp boat, which passed through each segment at low speed so that the field researcher on board could record use in the data logs. In 1999, this mapping will be entered into the GIS database.

Shoreline Inventory of Day Use and Campsite Areas. As noted previously, on the initial survey date, the research boat passed slowly along the shores of Merwin and Swift reservoirs, and the locations of day use and camping areas observed were recorded on a map and characterized for their evidence of impact (size, presence of barren soil, bank erosion, garbage). Whether or not the site was occupied was also recorded on each survey date, as well as the type of use observed (day or overnight).

Shoreline sites (including areas used for day and camping) totaled 24 at Lake Merwin and 24 at Swift Reservoir. This is in contrast to 67 shoreline sites at Yale Lake, documented by researchers in the survey conducted there in 1996.

The weather conditions varied on the 5 survey dates, as indicated by Table 5.

**Table 5. Weather conditions during boat surveys at Merwin and Swift reservoirs.**

Survey Date	Description of Weather Conditions
July 4 (holiday weekend)	Rainy, cool
July 12	Cloudy
July 26	Sunny, hot
August 1	Morning clouds. Sun after 1530
August 22	Morning clouds. Sun afternoon

Boating Use and Counts. Results of lake boater counts taken from the research boat on the survey dates are summarized in Tables 6 and 7.

**Table 6. Watercraft and angler use of Lake Merwin during 1998 lake boater counts.**

Survey Date	Watercraft on Water					Anglers	
	Power	Sail	PWC	Paddle	Total	Boat	Bank
July 4 (holiday wknd)	7	0	4	0	11	14	4
July 12	70	1	10	7	88	65	4
July 26	41	0	9	0	50	1	3
August 1	80	2	13	2	97	26	6
August 22	30	0	5	0	35	8	2
Average	45.6	0.6	8.2	1.8	56.2	22.8	3.8

An average of just over 56 boats were counted on survey dates at Lake Merwin, while Swift Reservoir averaged about 23 boats. This is in contrast to Yale Lake, which averaged 107 boats during the 1996 lake boater counts during a similar period of time.

**Table 7. Watercraft and angler use of Swift Reservoir during 1998 lake boater counts.**

Survey Date	Watercraft on Water					Anglers	
	Power	Sail	PWC	Paddle	Total	Boat	Bank
July 4 (holiday wknd)	6	1	1	1	9	12	4
July 12	0	0	0	1	1	29	0
July 26	41	0	7	7	55	6	5
August 1	10	0	2	0	12	29	2
August 22	32	0	2	2	36	29	0
Average	17.8	0.2	2.4	2.2	22.6	21	2.2

Similar to the findings in the 1996-97 Yale study, the predominant watercraft used at each reservoir are powerboats, accounting for 81 percent of boats observed at Lake Merwin and 79 percent of the total boats counted at Swift Reservoir. The next most common watercraft used were personal watercraft (PWCs), which accounted for 15 percent of the use observed at Lake Merwin and 11 percent of the boats counted at Swift Reservoir. Canoes accounted for 10 percent of the use observed at Swift Reservoir, whereas they were not as common at Lake Merwin, accounting for 3 percent there.

While the 1996-97 Yale study indicated that use levels at recreation sites in the Lewis River corridor were heavily influenced by weather, the highest shoreline use levels from the boat observation dates were recorded on a rainy, cool July 4<sup>th</sup> weekend during the 1998 season. In this case, the national holiday was the determining factor, not the weather. The number of boats counted on the reservoirs, however, was decidedly weather dependent, with the highest numbers of boats counted on warmer survey dates in July and August.

Concentration of watercraft at Lake Merwin was greatest at the 2 end sections of the reservoir. Section E, located at the far eastern end of Lake Merwin, usually had the largest consistent presence of watercraft counted on survey dates, ranging from 2 on July 4 to 19 on July 26. This is likely because the boat launch at Cresap Bay is adjacent to Section E. Also included in Section E was a quiet area east of Cresap Bay that has a 5 mph speed limit and is a common area for dropping anchor to relax and picnic. Section I, located at the far western end of the reservoir before the forebay of Merwin Dam, contained the largest number of watercraft during observation dates, ranging from 1 on the July 4 weekend to 27 on August 1.

Swift Reservoir had a different pattern of watercraft distribution on the survey dates. Most of the watercraft observed at Swift were concentrated in the coves where streams flow into the reservoir from areas to the south. These areas are also more protected from wind. Section D, located in the cove formed where Drift Creek flows into the reservoir, typically had the most boats counted along the shore. Section D had up to 10 watercraft observed there at one time on July 26. Section F, one of the more concentrated sections at Swift located in the cove where Range Creek flows into the reservoir, had 10 watercraft present on July 26. The section at the far western end of Swift Reservoir (Section K) had the next largest concentration of watercraft, with 7 boats counted on August 22.

Similar numbers at both reservoirs were obtained from angling counts. Fishing from a boat was the most common form of angling during the 5 observation dates, with an average of just under 29 anglers observed at Lake Merwin and 21 at Swift Reservoir. These averages were similar to those in the 1996-97 Yale study, which reported an average of 23 anglers in boats on those study dates. The largest count of anglers at Lake Merwin occurred on July 12, with 65 while the largest number at Swift Reservoir was 29, occurring on 3 dates (July 12, 26, and August 1).

On the survey dates, researchers also kept track of activities observed from the research boat. Results from both Merwin and Swift reservoirs are included in Tables 8 and 9.

**Table 8. Recreation activities observed at Lake Merwin during 1998 boat counts, not including day use areas.**

Survey Date	Activities Observed						
	Picnic	Swim	Relax	Bike/Hike	Windsurf	Waterski	TOTAL
July 4 (holiday wknd)	0	0	0	0	0	3	3
July 12	37	31	5	0	0	18	91
July 26	0	4	29	0	0	9	42
August 1	6	0	36	0	0	24	66
August 22	0	0	18	0	0	10	28
Average	8.6	7	17.6	0	0	12.8	46

**Table 9. Recreation activities observed at Swift Reservoir during 1998 boat counts, not including day use areas.**

Survey Date	Activities Observed						
	Picnic	Swim	Relax	Bike/Hike	Windsurf	Waterski	TOTAL
July 4 (holiday wknd)	0	0	0	0	0	0	0
July 12	0	5	2	0	0	0	7
July 26	0	32	49	0	0	5	86
August 1	0	0	14	4	0	0	18
August 22	0	0	35	0	0	1	36
Average	0	7.4	20	0.8	0	1.2	29.4

At Lake Merwin, relaxing, swimming, and picnicking appear to be the most common recreation activity visitors are involved in if they are not fishing. An average of 46 people were observed from the research boat at Lake Merwin on survey dates, with the largest number counted on July 12, when 91 people were involved in various activities. On chilly, wet July 3, there were almost no people out on Lake Merwin, with only 3 observed by researchers.

At Swift Reservoir, most visitors observed along the shoreline were either relaxing or swimming. The largest number of visitors observed was on July 26 when 86 people were counted. The lowest number occurred on July 4 when there were no people out on the reservoir and it was chilly.

Lake Merwin Shoreline Use. In total, 24 shoreline recreation sites were found by researchers at Lake Merwin (see Table 10). Use at Merwin sites is characterized less by camping than day use. While about 10 of the sites could be used for camping, the remainder show more apparent signs of day use. At larger sites, evidence of camping included areas of barren soil, the presence of garbage, firepits, and/or access trails from the water to the site. Many of the sites that researchers documented had posted signs indicating that there were no fires permitted in the area. These sites were more typically used for day use, it appeared. Over half of the sites observed are probably used solely for day use by boaters. Most of the sites at Merwin are accessed by boat, with 21 out of 24 appearing to have no road access.

**Table 10. Description of shoreline sites at Lake Merwin.**

Site #	Site Description
1.	Fire ring on shore
2.	Probably fish hatchery site. Flagging, tables constructed.
3.	Trails to water; plastic bucket. North side of point.
4.	Signed site. Bent sign.
5.	Signed site. Steps to water.
6.	Large site w/ considerable soil compaction. Large beach access.
7.	Small site. Some shore impact. Nice. Big rock.
8.	Nice site. Some shore impact. Rope swing.
9.	Signed day use site. Old car.
10.	Signed day use site.
11.	Signed site.
12.	Small site. Wood shelter constructed. Beached float platform.
13.	Sand bar day use area.
14.	Drive-in site. Large barren soil area w/ shore erosion.
15.	Signed day use site. Access from road above.
16.	Signed day use site above cliff. Access from road above "field."
17.	Large site, but not much shore impact. Logs on shore, but has an opening.
18.	Signed site. Not much evidence of use.
19.	Day use site. Lots of garbage w/ firepits.
20.	Camp/day use site near stumps. Hard to see.
21.	Day use beach near private home on point at Woodland Park.
22.	Road access to shore.
23.	Beach area.
24.	Point w/ trees. Day use area. Trails. Speed limit signs.

Lake Merwin Shoreline Site Occupancy. On the 5 observation dates, an average of 8.2 of the 24 sites at Lake Merwin were occupied by visitors, which translates to a 34 percent occupancy rate average. The total shoreline site occupancy ranged from 20 percent (5 sites) on July 4 to 45 percent (11 sites) on July 26. A site was considered occupied if there was physical evidence that visitors were using the site, such as moored boats, camping gear, or the actual presence of visitors themselves. Camping on survey dates accounted for 38 percent of shoreline site visits while day use accounted for 62 percent.

Table 11 presents the occupancy rates of Lake Merwin shoreline sites over the 5 days of sampling. Most sites observed were occupied 20 to 40 percent of the sampling weekends, and none of the sites were occupied 100 percent of the dates that researchers passed through the area. Four of the sites located were never in use on survey dates. Only one of the sites was in use 4 out of the 5 survey dates. The most heavily used sites (numbers 6 – 10) were on the stretch of shoreline to the east of Speelyai Bay Park and to the west of Cresap Bay Campground.

**Table 11. Lake Merwin shoreline site occupancy rates.**

<b>% of time occupied on survey dates</b>	<b>Number of sites</b>
0%	4
20%	7
40%	7
60%	5
80%	1
100%	0

Swift Reservoir Shoreline Use. In total, 24 shoreline sites were inventoried at Swift Reservoir (see Table 12). Shoreline site use at Swift Reservoir seems to be more characterized by overnight use than at Lake Merwin. Just under half of the sites observed on the shoreline of Swift Reservoir could be characterized as large sites, with camping possible at most of the sites recorded.

**Table 12. Description of shoreline sites at Swift Reservoir.**

<b>Site #</b>	<b>Site Description</b>
1.	Island site. Large areas of barren soil and shore erosion.
2.	Potential site. Appears to have easy access.
3.	Easy access. Not much shore erosion.
4.	Large site on point.*
5.	Large site. Visible tree damage. Stairs dug in shore to water.*
6.	Smaller site w/ picnic table. Large areas of barren soil. Heavily impacted.*
7.	Small site. Soil compaction.*
7A.	Very small site—looks to have had beach access. *
8.	Large site at mouth of creek.*
9.	Large island site w/ large areas of soil compaction.*
10.	Large site. Approx. 25 feet of shoreline impacted. Rope swing.*
11.	Large site.*
12.	Another larger site. 2 posts.*
13.	Medium site next to 12. Wood tables, benches.*
14.	Small campsite on point.
15.	Site near north end of dam. Monitor for continued use.
16.	Small site w/ picnic table. Some soil compaction.
17.	Small site on island w/ traces of fire pit.
18.	Medium site. Visible garbage w/ impacted soil.
19.	Bluff campsite above water on point. Drive in site w/ access from logging roads. Appears to have picnic table.
20.	Campsite w/ firepit. Not much access.
21.	Point camp on island. Steps cut into soil for access.*
22.	Well hidden site. Looks to have large areas of barren soil.*
23.	Day use beach area at mouth of river.
*Drift Creek area campsites	

It was observed that access to almost all sites in the survey is by boat, although there are a number of shoreline sites on the north side of Swift Reservoir that are accessible by vehicle via logging roads. At larger sites, there was usually evidence of obvious recreational impacts, including extensive areas of barren soil, the presence of firepits, garbage, tree damage, and soil erosion from waterline access. At Swift Reservoir, the greatest concentration of shoreline sites is in the Drift Creek area on the south side of the reservoir (including sites 4 – 13, 21, and 22). These sites are accessible only by boat, but were the highest in terms of their size and occupancy rates.

Swift Reservoir Shoreline Site Occupancy. On average, 9.4 dispersed shoreline sites were occupied on observation days at Swift Reservoir, which averages to 39 percent occupancy for all 5 survey dates. The largest number of sites along the shoreline were occupied on July 4, when visitors used 50 percent of the sites located by researchers. The ratio of camping use to day use was opposite when comparing Swift Reservoir shoreline use with that of Lake Merwin. Sixty-two percent of the occupancy on the 5 survey dates was by groups camping, and the remaining 38 percent of the use observed was day use.

Table 13 presents the occupancy rates of Swift Reservoir shoreline sites over the 5 days of sampling. Most sites observed were occupied 20 to 60 percent of the sampling weekends, although there were 2 (in the Drift Creek area) that were occupied 100 percent of the time during survey dates, and 2 were occupied 80 percent of the dates researchers visited the areas. These sites were all located in the Drift Creek area.

**Table 13. Swift Reservoir shoreline sites occupancy rates.**

Percent of time occupied on survey dates	Number of sites
0%	4
20%	7
40%	5
60%	4
80%	2
100%	2

Dispersed Area Counts

Counts were conducted on 18 days at dispersed recreation areas near the Swift 2 bypass area, including the upper gate on the road grade above the Swift No. 2 canal, Swift overlook, and the forest harvest areas on the north side of Swift Reservoir. Twelve days of count observations were collected at areas along Forest Road 81, including the area between the junction of Forest Road 81 and Highway 503 and Merrill Lake, Merrill Lake Campground, the Kalama Horse Camp area, and along the road up to Blue Lake Trailhead in the Monument.



During the survey dates when a field researcher passed through the dispersed recreation areas, counts were made relative to the numbers of watercraft and angler use, the numbers of vehicles present (with and without trailers), activities observed, as well as numbers of tent and RV campers in the area. Overall numbers indicate a low density of recreation use in the dispersed areas, with zero to few visitors present on most of the survey dates.

Dispersed Area Watercraft and Angler Counts. Counts at areas near the Swift No. 2 canal on survey dates show that little watercraft use was evident in the area. This is not surprising, considering that watercraft are not permitted in the canal. On August 21, however, one inflatable boat was observed in the canal. Bank angling use is also highly evident, with an average of just under 3 anglers visible when researchers drove through the area. Numbers of bank anglers along the bypass canal near the bridge crossing ranged from 0 to 7. Bank anglers were present on more than two-thirds of the survey dates (13 of 18). Researchers noted that most anglers were accessing the bank from the parking areas to the north of where the bridge crosses the reservoir.

Swift Reservoir areas, including the overlook at the west end above the reservoir and the forest harvest area to the north of the reservoir, did not include areas where watercraft or angling would be possible; therefore, no such use was observed.

Forest Road 81 area counts regarding watercraft and angling refer to those visible from the lakeshore at Merrill Lake. Results indicate that a low level of non-motorized boating use characterizes these areas (including paddle and inflatable boats). Only on one occasion was a powerboat observed on Merrill Lake. Overall the number was quite low, with a maximum of 4 boats visible from the boat launch on any given survey date. Angling use was evident but was also very low, ranging from 0 to 5 in boats, and 0 to 2 angling from shore.

Watercraft use or fishing is not possible in the Forest Road 90 areas. While there is rafting and kayaking use of the Lewis River stretch near the Curly Falls area, no boaters were observed there on the survey dates.

Dispersed Area Vehicle Counts. The area near the Swift No. 2 canal usually had vehicles present on survey days, almost all of them without trailers. Most vehicles observed in the Swift No. 2 canal area were usually parked in a gated-area on the road grade just past the bridge over the canal. Visitors who wish to access the dam area at the west end of Swift Reservoir usually park in this area and walk the short distance to the dam. Numbers of vehicles counted in this area ranged from none in May to 22 in August, with an average of 7 vehicles present on the 18 days of observation.

Vehicles present in Swift Reservoir area (the overlook and timber harvest areas) were fewer than at Swift No. 2, with an average of just over 3 vehicles present on the survey dates. Most vehicles observed by researchers were stopped at the overlook above the west end of the reservoir. While dispersed use of the timber harvest was occasionally evident, it was infrequent as observed from the highway.

Areas along Forest Road 81 leading into the Monument had higher numbers of vehicles present on the 12 survey dates that researchers passed through the areas. Counts ranged from 2 vehicles present on a rainy May 24 (where only 4 vehicles were counted in the broader area) to 34 vehicles on September 6 (which was sunny and warm.) The average number of vehicles present in dispersed areas along Forest Road 81 was just under 22.

Forest Road 90 showed little dispersed use on 12 survey days of observation, with an average of 1.25 vehicles in the area on survey dates (with a maximum of 5 vehicles on June 20).

Vehicles in the Curly Falls parking areas ranged from 4 to 13, with an average of just over 7 vehicles present on survey dates. It should be noted that there are 2 parking areas at Curly Falls, one at the bridge/put-in near the trail and one near the trail leading to the overlook.

Dispersed Area Activity Counts. Activity categories in the dispersed recreation counts (other than watercraft use, camping, or angling) included picnicking, swimming, relaxing, biking, hiking, hunting, rest stop use, horseback riding, windsurfing, and waterskiing.

Recreation activities observed in the Swift No. 2 area (other than angling) focused mostly on swimming and relaxing, with up to 10 people taking part in either on dates when researchers passed through the area. However, on 7 of 18 survey dates, no one was present when researchers arrived; therefore, the average number of visitors present was fairly low, with an average of 1.5 swimming and 1.3 relaxing. No hunting, rest stopping, horseback riding, windsurfing, or waterskiing were observed in the Swift No. 2 area.

Activities observed in the dispersed areas at the western end of Swift Reservoir show a low density of use, with activities recorded on 4 of 18 survey dates. The only activities observed by researchers at these sites included relaxing and swimming.

Activity counts associated with the Forest Road 81 area were also low, with half of the days researchers visited the area showing no use in the categories of picnicking, swimming, relaxing, biking, hiking, hunting, rest stop use, horseback riding, windsurfing, or waterskiing. An exception was the Labor Day weekend day of September 5, when 30 visitors were counted in the area. Relaxing was the most commonly observed activity in the Forest Road 81 area, with most occurring during the month of August.

No one was observed picnicking, swimming, relaxing, biking, hiking, hunting, rest stop use, horseback riding, windsurfing, or waterskiing in the Forest Road 90 areas during the times the researcher visited the area.

Activity levels in the Curly Falls area were also very low, with researchers seeing no one in the area involved in recreational activity on 7 of 12 dates. When visitors were in the area, it was most often to bike or hike, presumably along the Lewis River Trail which is accessible from the bridge parking area above Curly Falls. An average of just under 2

visitors were observed biking or hiking on survey dates, with a maximum of 7 people seen on June 27.

Dispersed Area Tent and RV Camp Count. Tent and RV camping in the Swift No. 2 and Swift Reservoir areas was almost non-existent, with none in evidence on 14 of 18 survey dates. When tent or RV camping was evident, it was usually in the canal area, with only one tent visible from any of the western Swift areas on survey dates. It should be noted that when RVs were observed in the area, they were likely not camped there but were apparently parked as part of a short visit.

The area near Forest Road 81 saw perhaps the heaviest dispersed camping frequency, with an average of just under 4 RVs and 10 tents per survey date. Groups using tents were evident in the area on every date in the survey, ranging from 1 to 18. RV camps were less prevalent, with between 1 and 4 RVs present at Forest Road 81 sites on most dates. The exception was the Labor Day weekend, when the field researcher counted 20 RVs in all dispersed recreation areas.

Dispersed camping was almost non-existent in the Forest Road 90 areas to the east of Swift reservoir, with researchers observing only 3 groups camping (2 RV, 1 tent) on 12 survey dates.

### **Visitor Survey Data**

During the peak and non-peak season of 1998, a multi-part written questionnaire was utilized among recreation visitors at 5 sites at Lake Merwin and 4 sites at Swift Reservoir. Results from this survey completed by visitors at Merwin and Swift are summarized below. An earlier visitor survey had been conducted in 1996 and 1997 at Yale Lake (PacifiCorp 1999), and the survey used in that study formed the basis for the one used in the 1998 visitor survey. In the reporting of the 1998 Merwin/Swift survey results, a comparison with the 1996-97 Yale results is made where applicable.

Both day use and overnight visitors were included in the survey samples. Survey items were organized into 5 groups, and this result summary parallels these areas: Overall Visitor Preferences and Perceptions; Camping, Fishing, Boating & Personal Watercraft Use; and General Visitor Comments.

Survey forms were collected through in-person contact with a field researcher or through mail-back surveys systematically left by researchers on vehicle windshields at boat launches. In total, 773 written surveys were collected – 545 completed at Merwin sites, and 228 at Swift sites. Approximately 70 percent of the completed surveys were obtained on-site while about 30 percent were returned through the mail.

The 1998 visitor sample results are discussed separately for peak and non-peak season users for comparative purposes in some sections of this summary report. The peak season for this survey ran from May 25 until September 7.

### Contact Site and Site Representation

The 3 day use sites at Lake Merwin where visitors were contacted included Merwin Park, Speelyai Bay Park day use area, Cresap Bay day use area; the 2 Merwin area campgrounds included Cresap Bay and Cresap Bay group camp. The sample of surveys obtained at Merwin was distributed with approximately 70 percent at day use areas and 30 percent of visitors in the survey contacted at camping areas.

The 4 survey sites at Swift Reservoir included the single reservoir camping area, Swift Camp, and 3 day use areas including Boulder Overlook, Eagle Cliff Park, and the boat launch near Swift Camp. The sample of surveys obtained at Swift was predominantly at Swift Camp, with 90 percent of the Swift sample contacted there. Most of the other 10 percent were contacted at the boat launch near the campground.

When the 2 samples were combined, the aggregates for visitors contacted at campgrounds versus day use areas were evenly split, with 49 percent contacted in campgrounds and 51 percent contacted at day use areas.

### Activity Participation (Question 2)

Visitors were asked what activities (from a list of 22) they participated in during their trip to the Lewis River recreation area (multiple answers were allowed). Visitor responses are included in Table 14.

**Table 14. Activity participation at Merwin and Swift reservoirs.**

Relaxation	75.3%
Spending time with family	68.9%
Sunbathing/swimming	67.5%
Tent camping	43.6%
Picnicking	43.0%
Hiking/walking	35.2%
Sightseeing	29.9%
Power boating	27.5%
Waterskiing	26.8%
Fishing from shore	23.6%
Fishing from boat	21.9%
RV camping	19.4%
Jetskiing/personal watercraft use	14.0%
Mountain/road biking	13.5%
Kayak/canoe/row/raft/tube	10.4%
Nature study/photography	7.1%
Caving/rock climbing	3.4%
Hunting	1.6%
Backpacking	1.3%
Other	1.3%
Sailing	0.8%
Windsurfing	0.4%
Horseback riding	0.1%

The most common activity reported by visitors at Merwin and Swift sites was relaxation, with 75 percent indicating this as one of their trip activities. In contrast, Yale Lake visitors in the 1996-97 study indicated that camping was the most common recreation pursuit, cited by 75 percent of visitors in that sample. However, relaxation was not one of the activity options in the earlier study. Another explanation for the activity difference between the 2 surveys might be that Yale Lake has 3 campgrounds compared to 2 in the Merwin and Swift survey study area.

Spending time with family was the next most popular recreation activity among visitors in the 1998 Recreation Visitor Survey, with 69 percent reporting this as an activity they participated in on their visit. This activity category was not included as an option in the 1996-97 Yale study.

Sunbathing and swimming were enjoyed by 68 percent of the visitors at the Merwin and Swift sites. This is similar to the number reported by visitors in the 1996-97 Yale study, which indicated that 65 percent participated in sunbathing and swimming on their visit.

The next most common activity reported was tent camping, with 44 percent of visitors participating. Nineteen percent of visitors reported RV camping as one of their recreation activities. These 2 combined indicate that 63 percent of visitors at Merwin and Swift reported camping while on their visit. This is in contrast, once again, to the higher percentage (75 percent) of visitors in the 1996-97 Yale study who reported RV/tent camping as part of their visit.

Picnicking was enjoyed by 43 percent of visitors in the recreation survey. This number is similar to results of the 1996-97 Yale study where 47 percent of the visitors reported picnicking on their visit to Yale Lake.

Hiking and walking were reported by just over 35 percent of the visitors at Merwin and Swift sites. This is lower than the 51 percent of visitors at Yale who reported hiking/walking on their visit as part of the 1996-97 study.

Just under 30 percent of visitors reported sightseeing as one of their activities at Merwin and Swift sites, compared with 50 percent in the earlier Yale Lake study.

Power boating and waterskiing were enjoyed by 28 percent and 27 percent, respectively. This is essentially the same participation level among visitors in the 1996-97 Yale study, which indicated that 29 percent of visitors participated in power boating and 24 percent in waterskiing.

Fishing from shore was reported by 24 percent of survey participants, while fishing from a boat was reported by 22 percent. If these were combined, 46 percent of visitors in the survey would indicate that fishing (either from shore or boat) was part of their trip. In the 1996-97 Yale study, fishing was reported by 39 percent of study participants, but that study did not separate the fishing location.

Personal watercraft use (jetskis, wave runners, etc.) was reported by 14 percent of participants in the survey, which is the same activity level as the Yale study participants.

Mountain/road biking was reported by just under 14 percent of visitors in the 1998 Merwin and Swift recreation survey, while slightly more visitors in the 1996-97 Yale study (17 percent) mountain biked as part of their visit.

Kayaking, canoeing, rowing, rafting, and tubing were combined into a single category and were enjoyed by just over 10 percent of visitors at Merwin and Swift. This represents a lower participation level than visitors in the 1996-97 Yale study, which indicated that 18 percent of visitors participated in these non-motorized water activities.

Nature study and photography were reported by just over 7 percent of visitors in the survey, which is less than half the number who participated in this activity in the 1996-97 Yale study (15 percent).

Caving and rock climbing were reported by just over 3 percent of visitors at Merwin and Swift, compared to 16 percent in the 1996-97 Yale study.

Visitors who reported hunting as part of their activities comprised fewer than 2 percent of visitors in the survey. There were no visitors in the Yale study who indicated hunting.

Backpacking was reported by 1.3 percent of participants in the survey. Sailing, windsurfing, and horseback riding were each reported by less than 1 percent of visitors.

### Main Activity of Visitors (Question 3)

Visitors were asked what their main activity was during their visit to Merwin and Swift (choosing from a list of 22). Visitor activities of those surveyed at Merwin and Swift are ordered by the most common in Table 15.

**Table 15. Main activity of visitors at Merwin and Swift reservoirs.**

Spending time with family	19.3%
Relaxation	13.8%
Sunbathing/swimming	13.5%
Tent camping	10.6%
Power boating	7.5%
Fishing from boat	7.4%
Waterskiing	6.7%
Jetskiing/personal watercraft use	6.5%
RV camping	3.9%
Fishing from shore	3.2%
Picnicking	3.2%
Other	1.3%
8 others	< 1%

Similar to the participation levels reported in the first activity item on the survey, spending time with family was reported as the most common primary activity by participants in the survey. The contrast between the 1998 Merwin/Swift survey and the

1996-97 Yale study is the same regarding participation, with the main activity of visitors in the earlier study being RV/tent camping (46 percent). Tent camping was the primary activity of just under 11 percent of visitors, and RV camping was rated as the main activity by just under 4 percent of visitors in the survey of Merwin and Swift.

Relaxation and sunbathing/swimming each accounted for the primary activity of 14 percent of survey participants. Recall that relaxing was not an activity item on the 1996-97 Yale study. Nine percent of participants in the earlier study indicated sunbathing/swimming as their primary activity.

Power boating and fishing from boats were the next most common primary activities, with 8 percent reporting each of these as their main activity while at Merwin or Swift. In the 1996-97 Yale study, the same percentage of visitors indicated that power boating was their main activity. Ten percent of visitors in the earlier study indicated fishing as their primary activity. Fishing from shore was indicated as the main activity of just over 3 percent of visitors in the 1998 survey.

Just under 7 percent of visitors in the Merwin and Swift studies indicated that personal watercraft use or waterskiing were their primary activity on their visit. This is slightly more than visitors in the 1996-97 Yale study, which indicated that 4 percent of visitors were primarily there for personal watercraft use, and 5 percent were primarily there for waterskiing.

Picnicking was the main activity of 3.2 percent of visitors at Merwin and Swift, while the percentage in the survey among visitors at Yale was 5 percent.

While sailing was reported by 4 percent of visitors at Yale Lake in the 1996-97 study, only 0.1 percent reported this at Swift or Merwin as their primary activity. This is likely explained by the fact that organized sailing regattas are held seasonally out of Cougar Park on Yale Lake.

#### Main Activity Participation by Timeframe

Visitor responses to the question about their main activity were analyzed by timeframe. The non-peak season included May 3 to 24 and September 8 to 26. The peak season ran from Memorial Day (May 25) to Labor Day (September 7). Table 16 below shows the difference between the two timeframes.

Activities of visitors in the Lewis River corridor tend to be heavily influenced by weather. Non-peak visitors are more likely to be in the area to fish than those during the high use season. Early season users are family-oriented, but less so than those visiting during the season peak. They are also less likely to participate in the fairer weather activities of sunbathing, swimming, waterskiing, picnicking, and tent camping. Peak season users, on the other hand, are most likely to be in the area to spend time with family, and to sunbathe, swim, and relax.

**Table 16. Main activity by season at Merwin and Swift reservoirs.**

Main activity	Season	
	Non-peak	Peak*
Spending time with family	14.4%	21.1%
Relaxation	10.3%	15.1%
Sunbathing/swimming	6.7%	16.1%
Tent camping	5.7%	12.5%
Power boating	9.3%	6.9%
Fishing	19.6%	2.6%
Waterskiing	4.4%	9.3%
Jetskiing/personal watercraft use	5.2%	7.1%
RV camping	3.6%	4.0%
Picnicking	1.0%	4.0%

*\*Peak season extended from May 25 until September 7, 1998*

Overall Rating of Area Compared to Similar Areas Visitors Use for Recreation (Question 4)

Visitors were asked how they would rate the Merwin\Yale\Swift area among similar areas that they use for recreation, and most responded with high ratings. Half of the visitors (50.5 percent) reported that they enjoyed the area better than most other similar areas. One-fourth (24.9 percent) rated the Merwin\Yale\Swift area better than any other similar areas they used for recreation. Just under 3 percent indicated that they liked the areas less than most other similar areas, while just over 1 percent indicated that they liked the area less than any other similar areas. Results are summarized in Table 17 below.

**Table 17. Overall rating of Merwin/Yale/Swift reservoir area.**

I like the Merwin\Yale\Swift Reservoir area...	Percent
less than any other similar areas I use	1.2
less than most other similar areas I use	2.9
about the same as most other similar areas I use	20.4
better than most other similar areas I use	50.5
better than any other similar areas I use	24.9

The 1996-97 study at Yale Lake did not contain the question asking visitors to compare the area to other similar places they use for recreation; however, the 1998 Yale Lake survey (a shorter version of the one summarized in this report) indicated similar results (see Section 3.2, 1998 Yale Lake Recreation Visitor Survey). The responses of visitors at Yale Lake were similar to those found at the Merwin and Swift sites. For example, close to the same number of visitors (50.1 percent compared to 50.5 percent at Merwin/Swift) at Yale indicated that they enjoyed the area better than most other similar areas. While 24.9 percent of visitors at Merwin/Swift indicated that they liked the area better than any other similar area that they use, 19.5 percent of visitors at Yale in 1998 responded similarly. Those visitors indicating that they liked Yale about the same as most other similar areas they used comprised 26.9 percent of the Yale sample (compared to 20.4 percent at Merwin/Swift sites). Those visitors who indicated a more negative experience at Yale comprised 3.5 percent of the sample compared to 4.1 percent at the Merwin and Swift sites in the survey.



Overall Rating of Area by Timeframe

Responses to the overall rating of the Merwin\Yale\Swift area by timeframe were similarly distributed, with early season users responding less strongly regarding their comparison than those surveyed during the more intense peak season. Early season users were more likely to indicate that they were less likely to enjoy the area compared to other similar areas they used, although this difference was only slight. Survey responses are summarized in Table 18.

**Table 18. Overall rating of the area at Merwin, Yale, and Swift reservoirs, by timeframe.**

I like the Merwin\Yale\Swift Reservoir area...	Non-peak	Peak
less than any other similar areas I use	1.9%	0.9%
less than most other similar areas I use	2.8%	2.9%
about the same as most other similar areas I use	27.9%	17.5%
better than most other similar areas I use	45.1%	52.7%
better than any other similar areas I use	22.3%	26.0%

Visitor Perceptions of Crowding (Question 5)

Survey participants at Merwin/Swift sites were asked the question “Do you feel crowded today?” The response framework was comprised of a 7-point scale with a range from “not at all crowded” on one end of the scale to “extremely crowded” at the other. Survey responses are summarized in Table 19.

**Table 19. Visitor perceptions of crowding at Merwin and Swift reservoirs.**

Percent	46.2%	15.3%	15.3%	5.4%	11.7%	3.7%	2.4%
Scale	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Response	Not at all Crowded		Slightly Crowded		Moderately Crowded		Extremely Crowded

In the same manner as the summary report for the 1996-97 Yale study, these responses were condensed to 4 general categories. In an overall sense, visitors at the Merwin and Swift sites report lower levels of crowding, with 61.5 percent reporting that they felt not at all crowded (or slightly above). Just over one-fifth (20.7 percent) felt slightly crowded (or slightly above); 15.4 percent reported feeling moderately crowded; and 2.4 percent of the participants at Merwin and Swift indicated that they felt extremely crowded.

The crowding levels reported at Merwin and Swift are lower overall compared to those found at Yale Lake in the 1996-97 studies. For example, 61.5 percent of Merwin/Swift visitors reported no crowding at all compared to 41 percent of Yale visitors in 1996-97. While 20.7 percent of Merwin/Swift visitors indicated that they felt slightly crowded, 28 percent of visitors in the earlier Yale study

Visitor Perceptions of Crowding by Timeframe

Visitors’ perceptions of crowding were analyzed for those visiting recreation sites during the lower use season versus those visiting during peak season. Survey results are presented in Table 20.

Lower levels of recreational crowding during non-peak periods in the Lewis River corridor are somewhat evident, although the overall character of crowding is similar between the two timeframes. While visitors seem more likely to report moderate levels of crowding during the peak season, the numbers reporting extreme crowding are essentially the same during non-peak and peak times.

**Table 20. Visitor perceptions of crowding by timeframe for Merwin and Swift reservoirs.**

<b>Non-peak</b>	51.2%	15.8%	14.0%	4.7%	8.4%	3.7%	2.3%
<b>Peak</b>	44.3%	15.1%	15.9%	5.7%	13.0%	3.6%	2.4%
<b>Scale</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Response</b>	Not at all Crowded		Slightly Crowded		Moderately Crowded		Extremely Crowded

Visitor Conflicts or Complaints About Other Visitors (Question 6)

Most visitors at sites in the Merwin and Swift survey did not have conflicts or complaints regarding the behavior of other area visitors. Just under over three-quarters indicated that they had no complaints, while 22.9 percent answered this question affirmatively. Visitors who said that they had experienced conflict with others were asked to indicate the nature of the conflict. From the list of all conflicts, the most common complaint at the Merwin and Swift sites was noise after quiet hours in the campgrounds (19 percent), followed by complaints about personal watercraft users (14 percent). The next most frequently cited conflict related to problems associated with visitors’ dogs (12 percent). Table 21 presents a ranked listing of conflicts.

**Table 21. Visitor conflicts or complaints about other visitors at Merwin and Swift reservoirs.**

<b>Issue Raised</b>	<b>Percent</b>
Noise too late (after 10 p.m.)	19%
Personal watercraft complaints	14%
Dog problems	12%
Loud people	8%
Inconsiderate behavior	7%
Drinking	6%
Boat speeds/noise	5%
Teenagers’ behavior	4%
Boat speeds too fast in no wake zones	4%
Generators	3%
Garbage/litter	3%
Problems associated with campsites	3%
Boat ramp conflicts	2%
Fast driving	2%
General boating conflict	2%

“After hours” disturbances was also the most common complaint reported by visitors in the 1996-97 Yale study, with 30 percent of those complaining citing this as a conflict. Uncooperative behavior among neighboring campers was the next most commonly cited behavioral problem with other visitors in the Yale study (21 percent). If a more general category of inconsiderate behavior were created from the above Merwin/Swift list,

excluding noise after hours, this would account for 25 percent of complaints among Merwin/Swift visitors. Similar levels of conflict related to dog problems were cited by visitors in both studies, with 15 percent of Yale visitors citing off-leash pets causing problems and 12 percent of Merwin/Swift visitors complaining of dog problems. Problems associated with campsites were slightly less common among visitors in the Merwin/Swift survey (3 percent), while 5 percent in the Yale study cited this as a difficulty. Boat ramp conflicts were less common among visitors at Merwin and Swift sites (2 percent) than those at Yale sites in the 1996-97 Yale study (5 percent).

#### Condition of Area Recreation Facilities (Question 7)

Visitors were asked to rate the condition of area recreation facilities on a 5-point scale, from poor to excellent. Overall, participants at survey sites indicate a positive impression of facility conditions in the area, with almost 94 percent providing a positive response. Twenty-eight percent of visitors said that they found the condition of facilities in the area to be excellent, 41.9 percent said that they were very good, and 25.3 percent said that they were good. Of those who responded negatively, 3.5 percent said that facilities were fair and 1.2 percent said that they were poor.

As part of the briefer survey form used at Yale sites in 1998, visitors were asked the same facilities question. A similar high percentage of visitors gave Yale facilities high marks, with over 92 percent responding positively to the question. Just over one-fifth (20.5 percent) of visitors felt that facility conditions were excellent; 43.5 percent said that they were very good, and 28.1 percent said that they were good. More visitors at Yale (7.8 percent) were likely to respond that facility conditions were fair (6.3 percent) to poor (1.5 percent).

The rating scale used in the 1996-97 Yale study was somewhat different, but the results suggest that visitor impressions of facilities at those sites were very similar to the results of the 1998 field surveys at Merwin, Swift, and Yale reservoirs. Ninety-five percent of 1996-97 visitors positively evaluated facilities while 92 percent of 1998 visitors gave favorable evaluations. The lower rating end of the scale used in the 1996-97 study was the same used in the 1998 survey; however, the data suggest that visitor evaluations were different between the 2 surveys. Visitors in the 1996-97 Yale study rated facilities at 4 percent fair and 1 percent poor, while visitors in the 1998 survey at Yale rated facilities 6.3 percent fair and 1.4 percent poor.

#### Additional Facilities Desired (Question 8)

Visitors at Merwin and Swift were also asked if any additional facilities should be provided in the area. Almost half (47 percent) of those surveyed said they desired additional facilities. Open-ended responses provided to the second part of the question indicated that additional showers and boat docks were the most frequently desired of all those listed. Table 22 presents a rank ordering of facilities that visitors felt should be provided in the area.

Visitor Destination Habits (Questions 9 and 10)

Visitors were asked if they planned to visit any recreation areas during their visit to the Lewis River Valley other than the site where they were contacted. A majority of visitors (70.9 percent) surveyed at Merwin and Swift sites indicated that they planned on remaining at or near the site where they were contacted. The remaining respondents (29.1 percent) indicated that visiting other sites was part of their travel plans.

**Table 22. Additional facilities desired by visitors at Merwin and Swift reservoirs.**

Desired Facility (313 responses)	# Indicating Additions	% of 313	% of Total Survey Sample
Showers	44	14.06	5.69
Boat docks	43	13.74	5.56
Playgrounds	36	11.50	4.66
Camping areas	35	11.18	4.53
Increase/improve swimming areas	22	7.03	2.85
Hookups	22	7.03	2.85
Boat ramps	22	7.03	2.85
Parking areas (areas for trailers)	19	6.07	2.46
Areas for kids	11	3.51	1.42

Primary destinations of mobile visitors who did not plan on remaining at or near the site where they were surveyed (29.1 percent) are listed in Table 23. About half (49.5 percent) of those visitors indicated that Mount St. Helens National Volcanic Monument (including Ape Cave and Lava Canyon) was one of their primary destinations as part of their visit to the Lewis River Valley. Mobile visitors surveyed at Merwin and Swift indicated Yale Lake (36.7 percent) as another of their main destinations. Lake Merwin was cited by 30.1 percent of mobile visitors as being a primary destination during their visit. Swift Reservoir was also included in participants' itineraries, with 27.2 percent indicating this as one of their primary destinations. Approximately one-third (29.5 percent) said that they were visiting the Gifford Pinchot National Forest (GPNF) as a main part of their trip. Survey participants also indicated visits to Lewis River sites upstream of Swift (23 percent) and downstream of Merwin (15.2 percent) as part of their main destinations on their trip.

**Table 23. Main destinations of mobile visitors at Merwin and Swift reservoirs.**

Destination	Percent Response
Mount St. Helens Nat. Vol. Mon./Ape Cave/Lava Canyon	49.5%
Yale Lake	36.7%
Lake Merwin	30.1%
Gifford Pinchot National Forest	29.5%
Swift Reservoir	27.2%
Lewis River area upstream of Swift Reservoir	23.0%
Lewis River area downstream of Merwin Dam	15.2%
Merrill Lake	12.9%
Private timber lands in the Lewis River area	8.3%
Private RV parks/resorts	6.5%
Siouxon lands	5.5%

Participants in the 1998 Yale survey who did not plan on remaining at or near the site where they were surveyed showed a similar distribution of primary destination patterns. Just over half (54.1 percent) reported plans for a visit to the Monument as one of their primary destinations on their trip. This is similar to the percentage (55 percent) reporting Monument visit plans by Yale visitors in 1996-97. Over 56 percent of Yale visitors in the 1998 survey reported that they were also including Swift Reservoir in their primary destinations, and 35.8 percent indicated that Lake Merwin was a destination. The likelihood that visitors at Yale sites were more apt to visit Monument areas was found in the 1996-97 study, and the 1998 data suggest that the same held true.

Similar percentages of visitors in the 1998 Yale study indicated the GPNF as a primary destination (26.6 percent) as those who were surveyed at Merwin and Swift (29.5 percent). However, responses from the 1996-97 and 1998 Yale studies were considerably different, with 15 percent indicating GPNF in the earlier study.

Visitors at Merwin and Swift were also similarly oriented toward including the downstream and upstream sections of the Lewis River in their primary destinations (15.2 percent and 23 percent, respectively) compared to the visitors surveyed at Yale Lake (15.9 percent and 11.9 percent) during 1998.

Just under 13 percent of visitors at Merwin and Swift indicated that they included Merrill Lake among their primary destinations, which is somewhat less than those at Yale Lake during the same year (16.6 percent).

#### Frequency of Visits to Day Use Areas (Question 11)

Visitors at Merwin and Swift were asked how often they visited day use areas near Merwin, Yale, and Swift. Results from this survey item indicate that visitors have fairly heavy repeat visits annually, with approximately half visiting more than 6 times annually, and just under 85 percent reporting that they visit more than 2 times annually. Table 24 presents the frequency of participants' trips to the area.

**Table 24. Frequency of visits to the Merwin and Swift reservoir areas.**

Once per year	15.4%
2 to 5 times per year	41.7%
6 to 10 times per year	21.1%
Over 10 times per year	21.9%

#### Response to Day Use Fees (Question 12)

Visitors were presented with the following information: "Beginning next year, Pacific Power is planning to implement a day use fee of \$2 - \$3 per vehicle to maintain the current day use facilities in the Merwin\Yale\Swift area." This statement was followed by asking visitors if the introduction of a fee would affect their visit. Most visitors (69 percent) indicated that they would visit the area the same amount, while over one-fifth (21.4 percent) indicated they would visit the area less. Just over 7 percent responded that

they would not visit the area anymore. A small percentage implied they would visit the area more (2.3 percent).

Visitors at Yale Lake were asked the same question as part of the survey there in 1998. Responses at these sites were similar to those at Merwin and Swift, with 67 percent indicating that the fee would not change their visit patterns. When compared with the sample of visitors from Merwin and Swift, fewer visitors at Yale Lake said that they would visit the area less (20.5 percent), but slightly more said that they would not visit the area anymore (8.4 percent).

### Responses to Potential Higher Fees for Increased Law Enforcement and Emergency Response (Question 13)

Both visitor surveys in 1998 utilized a follow-up question to the day use fee information that asked: “Would you also be willing to pay a little more for increased law enforcement and emergency response?” Responses to the survey at the Merwin and Swift sites were divided somewhat evenly between the 3 potential responses. At Merwin and Swift, 24.9 percent responded that they would be willing to pay a bit more for increased services; 37.4 percent said they would not be willing to pay more, and 37.6 percent responded that they might be willing to pay more. Visitors participating in the Yale survey responded with 28.7 percent saying they would be willing to pay more for increased services, 36.4 percent indicated they would not be willing to pay more, and 34.9 percent responded maybe.

### Camping

Visitors who were camped in a developed campground during their visit to sites at Merwin and Swift comprised half of all visitors (407) who participated in the recreation survey. These visitors were asked to respond to a series of questions relating to the following issues:

- Campground choice
- Availability of campsites
- Annual campground visits
- Group camp reservation availability
- Camping fee preference
- Boat launch disturbances at campgrounds
- Desired improvements at campgrounds
- Factors in choosing a campsite

Campground Visitor Sample. Visitors were asked to indicate the campground where they were staying on their trip. Most visitors in the Merwin and Swift survey were camped at either Cresap Bay Campground (53.8 percent) or Swift Camp (40.8 percent). Few of the visitors in the Merwin and Swift sample stayed at any other campgrounds, with 1.2 percent replying that they were staying at a private RV park or resort, and 1 percent at Cougar Campground.

Difficulty Finding a Campsite (Question 15). Just over half of the visitors surveyed (50.4 percent) at the Merwin and Swift sites indicated that they did not encounter difficulty in locating an available campsite on their visit. For the other half, locating an available campsite was somewhat challenging. Finding a campsite was “difficult” for 29.2 percent of visitors in the survey, and it was “somewhat difficult” for 20.4 percent. In comparison, visitors in the 1996-97 Yale study had similar responses to the challenge of finding a campsite. In the Yale study, slightly more visitors (54 percent) indicated that it was difficult or somewhat difficult. Thirty percent of the Yale sample said it was difficult and 24 percent said it was somewhat difficult.

Difficulty Finding a Campsite by Timeframe. Campground visitors’ responses were separated by season, with the results presented in Table 25.

**Table 25. Difficulty finding a campsite, by timeframe.**

<b>Response</b>	<b>Non-peak</b>	<b>Peak</b>
Not difficult	63.3%	47.3%
Somewhat difficult	20.3%	31.3%
Difficult	16.4%	21.4%

Not surprisingly, campground users were more likely to encounter difficulty finding a campsite during peak survey periods than during the non-peak season.

Annual Campground Visits (Question 16). All visitors were asked how many times they visit Lewis River Valley campgrounds annually. Just over one-fifth (21.3 percent) reported that they came once a year, while 56.3 percent said that they visited area campgrounds 2 to 5 times annually. Visitors who used campgrounds 6 to 10 times per year comprised 13.6 percent of those contacted at Merwin and Swift sites, and 8.7 percent reported more than 10 trips to the area.

While the response categories were different for the survey instrument used in the 1996-97 Yale study, results were very similar, with 77 percent of Yale visitors reporting that they visited between 1 and 5 times per year; 78 percent of Merwin and Swift visitors reported the same annual frequency.

Expanded Reservation System Interest (Question 17). Similar numbers of visitors approve and disapprove of the proposal to expand the existing reservation system to a portion of individual campsites. Just under 40 percent of visitors at Merwin and Swift indicated that they did not support an expanded reservation system, while 34 percent supported expansion. Just over 26 percent of visitors in the survey indicated “maybe” in response to this question.

Visitors surveyed in the 1996-97 Yale study expressed similar opinions of an expanded reservation system. At Yale, 35 percent indicated that they did not want to see the existing reservation system expanded, while 39 percent favored reservations. Just over one-quarter of visitors surveyed at Yale were “somewhat interested” in an expanded reservation system. Currently, group sites may be reserved and some campsites may be reserved during Memorial Day Weekend.

Reservation System Interest by Timeframe. Visitors’ responses to questions regarding the reservation system were analyzed for non-peak and peak seasons. The distribution of responses was very similar, even though visitors reported that they were more likely to encounter difficulty finding a campsite during the peak season (Table 26).

**Table 26. Visitor interest in an expanded reservation system by timeframe at Merwin and Swift reservoirs.**

Response	Non-peak	Peak
No	40.7%	39.5%
Yes	34.9%	33.9%
Maybe	24.4%	26.6%

Opinions of Camping Fees (Question 18). Just under three-quarters of visitors who were camping in the area indicated that fees at Merwin, Yale, and Swift campgrounds were “okay” while just over one-quarter felt that the fees were too high. Slightly over 1 percent felt that the fees charged were too low. This distribution of visitor opinion is somewhat more representative of peak users; visitors who were surveyed during non-peak dates in the survey were more likely to find the fees to be too high, with 35.6 percent saying fees were too high and 63.2 percent felt that fees were “okay.”

Visitors surveyed in the 1996-97 Yale study responded virtually the same as visitors at Merwin and Swift to the question on the acceptability of camping fees. Sixty-three percent surveyed indicated that camping fees were okay. Thirty-six percent said fees were too high.

Problems Associated with Boat Launch Access at Campgrounds (Question 19). About three-fourths of visitors at campgrounds do not feel that it is a problem when boaters put in or take out their boats at the campgrounds in the survey. However, just under 23 percent felt that the problem was slight to moderate, while 3.4 percent indicated that they felt that boat launches in campgrounds are a big problem.

Visitors in the 1996-97 Yale study were less disturbed by boat launch activity in or near campgrounds, with 90 percent indicating that they weren’t disturbed. Six percent at Yale study sites indicated that they were slightly disturbed by nearby boat ramps.

Desired Improvements at Campgrounds (Question 20). Visitors who completed the camping section of the survey were asked if there were any improvements that they would like to see at Merwin, Swift, or Yale campgrounds. Thirty-six percent responded that they desired no additional improvements while 64 percent responded yes. Visitors preferring improvements were asked to describe them, and 255 provided usable responses (this translates to one-third of the total visitor sample at Merwin and Swift). Of those providing responses, 22 percent indicated that they desired improvements in shower facilities, while 8 percent would like to see hookups at campgrounds. Seven percent said they would like to see more campsites, and 6 percent would like improved boat launches.



Visitors in the 1996-97 study at Yale Lake who indicated a desire for campground developments were also most in favor of shower improvements, although the frequency of visitors who responded to this item was lower (15 percent). Next on the list of desired improvements for Yale visitors were campsite improvements (14 percent), followed by improved restrooms (10 percent). This compares to 4 percent of visitors at the Merwin and Swift sites who desired restroom improvements.

Importance of Specific Campsite Features (Question 21). Survey respondents also provided ratings regarding their beliefs about the importance of specific campsite features. Survey responses are summarized in Table 27.

**Table 27. Campsite feature importance at Merwin and Swift reservoirs.**

Campsite feature	Percent				
	Not at all important		Important		Very important
Boat ramp is nearby	25.9	9.3	20.2	16.6	28.0
Other campsites are nearby	33.7	13.6	27.9	13.3	11.4
Camping within view of the lake	9.2	8.0	33.5	23.8	25.5
Quality of the surrounding scenery	1.6	2.1	12.1	29.8	54.4
Noise in the campground	3.5	4.9	19.0	26.2	46.5
Picnic facilities	12.0	11.8	28.3	20.4	27.6
Quality of restrooms and showers	1.8	1.6	9.9	22.1	64.6
Availability of drinking water	3.0	3.3	10.7	21.7	61.2
Availability of electrical hookups	29.0	15.0	23.9	11.7	20.4
Convenient garbage cans and pickup	3.7	6.7	21.6	25.3	42.8
Adequate RV parking and pull-through space	31.3	14.7	19.9	14.9	19.2
Distance to swimming area	10.9	8.8	31.6	25.6	23.0
Availability of sewage dump station	37.7	14.2	17.3	12.5	18.3

Some of the features visitors rated show a clearer direction of importance, with a greater level of agreement on one end of the importance spectrum, while ratings of other features are more evenly distributed in their importance among participants. Visitors in the survey were most in agreement when rating the importance of the quality of surrounding scenery, the quality of restrooms and showers, the availability of drinking water, lack of noise in campgrounds, and easy access to garbage cans. Availability of drinking water and quality of restrooms were rated as very important by over 60 percent of respondents.

Features rated as less important by a larger number of participants included the availability of a sewage dump station, whether other campsites are nearby, or whether there is adequate RV parking and pull-through space, with about one-third saying that these were not at all important.

### Fishing

If survey participants were fishing as part of their visit to the reservoirs, they were asked to respond to a number of questions related to fishing in the area. One-third of visitors in the survey (264) completed this portion of the survey.

Effect of Water Level on Fishing (Question 22). Eighty-nine percent of participants who completed the fishing section of the survey indicated that the lake water level did not have an effect on their fishing. Eleven percent responded that it did, and 18 visitors (6 percent of all fishing) provided some sort of description of how the water levels adversely affected their visit.

There was a difference between non-peak and peak season users regarding the effect of lake levels on their fishing while at the reservoirs. While 9 percent of peak visitors responded that lake levels affected their visit negatively, this percentage increased to 15 percent among non-peak visitors. The reservoirs are generally full during the peak season, but may be drawn down during the shoulder seasons.

Visitor responses from the 1996-97 Yale studies were similarly distributed, with 85 percent of those participants indicating that the pool level did not affect their fishing experience.

Location of Fishing (Question 23). Overall, visitors were evenly distributed among bank and boat anglers, with 38 percent indicating that they were fishing from a bank or wading, 33 percent fishing from a boat only, while 29 percent were fishing from both during their visit (see Table 28).

**Table 28. Fishing location by season at Merwin and Swift reservoirs.**

<b>Fishing location</b>	<b>Non-Peak</b>	<b>Peak</b>	<b>Overall percent</b>
Bank or wading only	16.5	48.3	38.0
Boat only	62.4	19.2	33.3
Boat and bank	21.2	32.6	28.7

During the non-peak season, anglers were much more likely to only fish from a boat than from a bank. During the peak season, visitors indicated that they are more likely to fish from the bank or wade. Fishing for kokanee is typically done from a boat during the earlier part of the year, and kokanee is the most plentiful fish being caught. As use levels rise during the peak season, the proportion of users fishing from a boat declines.

### Boaters and Personal Watercraft Users

Over half of the participants (401 people) in the survey indicated that they were boating or using a personal watercraft (PWC) during their visit.

Effect of Lake Level on Boating and PWC Use (Question 24). Most boaters and PWC users (84 percent) responded that the lake water level did not cause any problems. The 16 percent who indicated problems primarily pointed to logs and other debris as the largest problem. Sixty-three percent of those that encountered problems complained of debris. Other reasons included difficult access to shore (12 percent), inaccessibility of dock/boat ramps, pool level too low in general, and unmarked rocks (8 percent each).

Non-peak period boaters and PWC users were more likely to indicate problems with the lake level, with 21 percent reporting that the level caused problems. During peak season, 12 percent reported problems with pool levels.

Visitors in the earlier study at Yale Lake were more likely to report difficulty with lake levels. Thirty percent of participants at Yale sites in 1996-97 reported problems with levels.

Importance of Specific Water Recreation Features (Question 25). Visitors were asked to rate the importance of specific water recreation features at the reservoirs. In Table 29, the following distribution resulted from survey responses, with similar distributions resulting for each of the 4 features listed:

**Table 29. Importance of water recreation features at Merwin and Swift reservoirs.**

Water recreation feature	Percent				
	Not at all important		Important		Very important
Water level of lake	15.4	10.6	27.5	24.4	22.2
Number of other watercraft	12.4	10.6	26.5	25.8	24.7
Speed of other watercraft	13.1	11.6	23.9	20.4	31.0
Waiting time at boat ramp	15.3	13.1	27.9	23.1	20.6

The speed of other watercraft was the feature that was rated as very important by just under one-third of visitors in the boating section of the survey. One-fourth indicated that the number of other watercraft was an important feature, while the lake level and boat ramp waiting time were rated as very important by about one-fifth of the boaters in the survey.

The 4 features visitors were asked about were considered low in importance to about one-fourth of participant boaters in the survey. Another one-third to one-fourth of the boaters surveyed placed a medium level of importance on each of the 4 features.

Waiting Time at Boat Ramps (Question 26). Survey participants who were boating in the area were asked if they had to wait to put their boat or watercraft into the water. Just over two-thirds (67 percent) responded that they did not, while one-third (33 percent) said that they had a wait of some length. Waiting times averaged 13 minutes for survey participants. The range of waiting time ran from under 5 minutes to 35 minutes. A follow-up question asked visitors who waited if they thought this was a problem, and 61 percent felt that it didn't, 10 percent said it was somewhat, and 29 percent indicated that it was a problem.

The character of waiting time at boat ramps in the 1996-97 Yale study was similar to sites at Merwin and Swift, with 69 percent of boaters at Yale Lake indicating that they did not have to wait to put their watercraft in the water.

Watercraft Users Who Went Ashore (Question 27). Watercraft users were asked about their shoreline use while on their visit to Merwin or Swift. Most of those surveyed (71.4 percent) indicated that they had gone ashore while they were out on their boating trip. This was a similar distribution when compared to the Yale study, where 75 percent of boaters reported going ashore.

Visitors during the peak use season were more likely to stay in their boats while on their visits, with 25 percent responding that they went ashore while they were out on their boating trip. During the non-peak season, 15 percent indicated that they had gone on shore.

Activities While Ashore (Question 28). Visitors who reported that they had gone ashore were asked what activities they participated in while there. The top 3 reasons visitors were ashore were for swimming/sunbathing (71.3 percent), picnicking (63.9 percent), and use of toilets/restrooms (58.4 percent). Fewer visitors went ashore for hiking and walking (21.7 percent) or bank fishing (11.5 percent).

General Comments

Visitor Group Size (Question 29). Visits to the survey areas are largely an activity people do as members of a larger group. The average group size among visitors surveyed at Merwin and Swift was just under 8 people, with the most common group sizes ranging from 2 to 6 people. Group size is somewhat different at Merwin and Swift sites, with just under 60 percent of the groups comprised of 1 to 6 members, contrasting with 72 percent in the 1996-97 Yale study. Whereas 20 percent of Yale groups had 1 or 2 group members, 14 percent of groups at Merwin and Swift were this small.

Primary Residence of Visitors (Question 30). Most of the visitors in the survey lived in relative proximity to the Lewis River corridor, with just under 92 percent indicating that they lived in the I-5 corridor area from Woodland, WA to Portland, OR. The largest visitor group was from Vancouver, WA, with just under 44 percent recording it as their hometown. Over one-fourth of visitors in the survey were from the Longview-Woodland area. Just under one-fourth were from Portland, OR. Participants from the Seattle metropolitan area comprised 3.4 percent of the survey sample. Table 30 summarizes visitor origins.

**Table 30. Visitor origins at Merwin and Swift reservoirs.**

<b>Place of Origin</b>	<b>Percent Response</b>
Vancouver, WA	43.6%
Longview - Woodland, WA	26.1%
Portland, OR metropolitan areas	22.3%
Seattle, WA metropolitan area	3.4%
Zip code not available	2.8%
Non-Portland, OR	0.7%
Outside Washington & Oregon	0.6%

Age and Gender of Visitors (Question 31 and 32). Participants in the survey ranged from 18 to 81 years in age, with an average age of 39 years. The results indicate that over three-fourths of visitors ranged from 25 to 50 years of age. The survey sample was evenly divided between male and female visitors.