9.0 AESTHETICS/VISUAL RESOURCES

In compliance with 18 CFR 4.51 (F), PacifiCorp conducted studies to characterize the aesthetic/visual resources associated with the Yale Project and understand the effects of continued operation of the project on these resources. Potential aesthetic issues associated with the Yale Project include:

- visibility of existing hydroelectric generation and transmission facilities from locations of high public use;
- visual compatibility of existing project facilities with the surrounding landscape and consistency with applicable plans and policies;
- potential effects on aesthetic/visual resources from reservoir water level fluctuations (seasonal drawdown); and
- visual character of existing public recreation facilities provided by PacifiCorp as part of the project.

To address these issues, PacifiCorp conducted 2 aesthetic/visual resource studies as part of the relicensing process: (1) a visual assessment of existing project facilities, and (2) an assessment of aesthetic consequences of reservoir fluctuations. The 2 studies were initiated in 1996 and completed in 1997. Results of the studies are summarized below.

9.1 EXISTING VISUAL RESOURCES

The main objectives of the studies conducted as part of the relicensing process are: (1) to describe aesthetic resources; (2) determine project effects; and (3) develop protection and improvement measures, as needed. The following sections describe the study area, methods, and results of the studies.

9.1.1 Visual Assessment of Project Facilities

The purpose of the visual assessment of existing project facilities is to document areas from which the public is able to view project facilities and determine the consistency of the visual character of the facilities with applicable agency visual resource objectives, policies, and guidelines. Results of the study will indicate if existing facilities have an adverse effect on aesthetic/visual resources.

The study area for the visual assessment of existing project facilities includes a 0.5-mile buffer surrounding Yale Lake, the Swift bypass reach, and PacifiCorp property extending from Yale Dam and powerhouse to upstream of Yale Lake in the bypass reach. The visual assessment study area also includes areas along the east and west sides of Yale Lake. A key aspect of the study is the identification of areas from which existing project facilities are within public view, particularly along Lewis River Road.

9.1.1.1 Approach

A field visit to the Yale Project and adjacent study area was conducted on July 11 and 12, 1996. Areas from which project facilities are visible were identified. Existing visual conditions in the study area and the visual character of project facilities were inventoried and described. Observations were made from the Lewis River Road and the SR 503 Spur, other public-access roads, developed recreation sites at Yale Lake (Beaver Bay Campground, Cougar Campground and Park, Yale Park, and Saddle Dam Campground), and the vicinity of the Yale Dam and powerhouse. Notes and photographs were taken to document conditions.

9.1.1.2 Visual Character of the Study Area and Surrounding Region

Aesthetic resources in the study area include the landscapes surrounding the reservoir, specifically those viewed from the Lewis River Road, the reservoir surface, and from public use/recreation areas in the vicinity. Dominant landscape features include the forested hillsides that enclose and define the Lewis River valley and Yale Lake. Mount St. Helens and Mount Adams are striking visual features seen in the distance (weather permitting). The overall character of the landscape is rural, influenced most by the combination of the valley's forested slopes, open meadows, and low-density development. Timber harvest, farming and ranching, hydroelectric generation and power transmission facilities, and recreation development are also components of the local landscape.

The topography around Yale Lake defines the Lewis River valley, ranging from approximately 3,000 feet msl in the surrounding mountains and hills to approximately 500 feet msl at the valley floor. For the most part, the valley is covered by coniferous forest. The enclosing valley walls exhibit obvious evidence of timber harvest activity including timber clearcuts. Logging roads from exposed earth and cut/fill slopes appear as light tan scars among the green of the forest. Areas where large stands of trees have been removed are clearly evident. Most timber cut areas are in various stages of re-growth, with harvests having been phased over time. The result is a pattern of various shades and intensities of green. The more recently harvested areas appear lighter green. The 2 most recent timber harvests on Siouxon Ridge occurred in 1996 on DNR land and left a few scattered large trees within the cleared area.

Other significant man-made features seen in the vicinity of Yale Lake are the Swift-BPA 230 kV transmission line, which follows the SR 503 corridor, and the highway itself as it runs along or near the lake. There are also pockets of various developments including the Swift No. 2 powerhouse and power canal, the small community of Cougar, and PacifiCorp recreation facilities at Beaver Bay Campground, Cougar Park and Campground, Yale Park, and Saddle Dam Campground. In recent years, residential development within the Lewis River corridor has increased and is moving eastward from the Woodland area. New development has occurred along Lewis River Road adjacent to the Yale Project on the west side of the reservoir, including a recent subdivision of shoreline homes on private property north of Speelyai Canal (Neville property).

From various locations in the study area there are views of Mount St. Helens and Mount Adams protruding into the sky above the forested slopes.

9.1.1.3 Visual Character of Project Facilities

Yale Project facilities include the 323-foot high main earthen dam (Yale Dam), the 40-foot-high secondary earthen dam (Saddle Dam), a 2-unit powerhouse below Yale Dam, and 10.5 miles of 115 kV transmission line (the Merwin-Yale line). Yale Dam and powerhouse are reached by a gated road across the top of Yale Dam. The spillway structure is on the west end of the dam. A concrete abutment extends into the lake to direct water into the spillway. There are 5 spillway gates and a large concrete apron on the downstream face of the dam. The dam itself is faced with rock and grass which blend well with the surrounding forested areas. The powerhouse rests at the base of the dam near its east end, where it is visually inconspicuous, even from the top of the dam. The exposed portion of the dam facing the lake has approximately 10 to 15 feet of freeboard. The intake structure is about 15 to 20 feet high and is situated at the east end of the dam in front of some steep, rocky slopes that rise abruptly behind it. It has a gray metal superstructure that has weathered and darkened over time. It is always seen against a background of earth and vegetation. It blends very well with the background. There is a floating log boom extending the width of the area in front of the dam to prevent floating debris from entering the intake or spillway. There are at least 6 security lights, each 10 to 12 feet high, spaced approximately 150 to 200 feet apart along the top of the dam. There are also overhead lights at the top of the spillway gates and a flashing red light mounted on the top of the intake structure. The lights are illuminated as necessary to support project operations.

The recreation facilities at the nearby Saddle Dam Campground include overnight campsites surrounding a large gravel parking area and a new restroom. Facilities also include a separate day-use area with picnic tables, swim area, parking lot, and boat launch. A beach area for sunbathing and swimming consists of a grassy strip fronted by a narrow sand beach. Looking east from the beach area, the view is down the length of the reservoir; the enclosing, forested slopes of the valley walls frame a view of snow-capped Mount St. Helens, which rises in the distance and forms the terminus of the view. The contrast between the blue-green water of the lake, the dark green of the forested slopes, and the nearly white, snow-capped mountain set against a bright blue sky (in clear weather) produces a stunning scene of very high scenic quality. From Saddle Dam Campground, the 40-foot high earthen dam is the only visible project component and it dominates the landscape. The dam itself is faced with earth, rock, and grass and limits views of the lake from the campground.

Yale Park is a 10-acre area with a large gravel and grass parking area, boat launches, sand beach and swim area, and 2 separate lawn areas with numerous shade trees and picnic tables. New restroom facilities were constructed in 1994. There is a partial view of Mount St. Helens from Yale Park. Virtually all of the recreation facilities at Yale Lake, especially the day-use facilities, are well maintained and have a neat, orderly, high quality appearance and attractive visual character.

Cougar Campground and Park are accessed by 2 short roads leading off of Lewis River Road. Facilities at Cougar Park include a day-use parking lot, bath house and restrooms, picnic area, lawn area leading to a beach and swimming area, and a group campsite. Facilities at the adjacent Cougar Campground include a tent-only campground facility with restrooms, and a day-use parking lot with a boat launch. All facilities appear neat, attractive, and well maintained.

The large Beaver Bay Campground, however, shows signs of heavy use. There is little vegetation between campsites buffering views. There are substantial areas of bare ground, and a lack of campsite definition due to haphazard RV and vehicle parking. A main access road parallels the shoreline providing views of the lake and access to 3 campsite loops. There are 3 restrooms, 2 of which are of an older design. The tree canopy in the campground was recently thinned to provide more sunlight for understory vegetation growth. This has partially opened up views within the campground. Overall, the campground appears well maintained and clean. However, the lack of vegetation between RV sites and their close spacing result in multiple rows of large RVs parked close to one another blocking views of the shoreline and the natural surroundings. At the far west end of the campground is a well maintained day-use site with boat launch, picnic area, parking lot, and swim area and beach. A large wetland complex nearby provides good visual separation between the highway and the campground.

9.1.1.4 Visibility of Project Facilities

The viewing public is made up of: (1) local residents, primarily living along Lewis River Road/SR 503 and in the Town of Cougar; (2) motorists traveling along Lewis River Road/SR 503 and SR 503 Spur; and (3) recreationists visiting PacifiCorp's campgrounds and day-use sites in the study area. Most local residents live in the Town of Cougar west of Cougar Park and along Lewis River Road east of the SR 503 Spur. A smaller number of residents live along the SR 503 Spur and Frazier Road and near Speelyai Canal. A new residential development area, the Neville subdivision, is located north of Speelyai Canal with new homes along the western shoreline of Yale Lake. Private trailer and RV parks are located in the Town of Cougar. Views of project facilities do not occur from residential areas, except for those located adjacent to Speelyai Canal.

Most motorists view Yale Lake from the western shoreline. The primary vehicular access on the western shoreline is provided by Lewis River Road and SR 503 Spur, and Frazier Road. Yale Lake is visible to varying degrees from Lewis River Road/SR 503, which parallels the shoreline. The destination of most people traveling on Lewis River Road is either Yale Lake or the Town of Cougar. Others are just passing through the area. The nearby Mount St. Helens National Volcanic Monument draws approximately 4.7 million visitors per year, most of which use SR 504 on the north side of Mount St. Helens for access. Some, however, use Lewis River Road and stop to visit Yale Project recreational facilities on their way to and from the Monument. In particular, Yale Park is a popular stop.

Although Lewis River Road runs along or near the shore of Yale Lake, there are very few opportunities for views of the lake from the roadway because of a relatively narrow yet

dense stand of conifer trees between the highway and the shoreline. One notable exception is in the area of Yale Park, where gaps in the trees allow views of the lake. Otherwise, there are only brief glimpses or intermittent views of the lake from the highway. Conversely, from the lake surface and the lake shore, the roadway (and traffic) is mostly screened from view by the trees between the shore and the road. Along the eastern shoreline of Yale Lake, there is evidence of some bank erosion along the IP Road and from hillside slope failures as viewed from recreation areas on the west side. In most cases these areas are intermittent and dispersed along the east shore. They mostly occur directly at the shoreline.

Minor vehicular access is also provided on the east side of Yale Lake via the private IP Road (which is officially closed to public use, but does receive some unauthorized use), and via hillside logging roads generally under the jurisdiction of the DNR. From the eastern shoreline along the IP Road, both dams are visible. From the western shoreline roads, the only visible project features are the adjacent recreation facilities at Yale Park. The Merwin-Yale 115 kV transmission line is visible south of Frazier Road along the SR 503 Spur where it crosses perpendicular to the highway. In addition, the transmission line is visible near the Merwin substation near Merwin Dam and Merwin Park within the Merwin project area.

Recreationists visiting PacifiCorp's campgrounds and day-use sites in the study area are the primary observers of project facilities. Most Yale Lake visitation occurs during the peak recreation season between Memorial Day and Labor Day weekends when Yale Lake is at or near full pool and when the weather is warmer and clearer. Over 600,000 people visited the Lewis River corridor during the peak recreation season in 1996. Developed recreational day-use sites and overnight campgrounds are provided along the western shoreline by PacifiCorp at Saddle Dam Campground, Yale Park, Cougar Park and Campground, and Beaver Bay Campground. Many visitors are also boaters who view Yale Lake from many vantage points on the reservoir. There are also approximately 67 day-use and overnight dispersed sites at various locations along the shore of Yale Lake and Siouxon Creek. Many are on the reservoir's eastern shoreline and are accessible only by boat.

Most of the Yale Project generation facilities (2 dams, powerhouse, spillway, canal, and transmission line) are not visible from the western shoreline's developed recreation areas, except at Saddle Dam. Saddle Dam itself is visible from the immediately adjacent recreation facilities. Yale Dam is within the background view from Yale Park and Cougar Park and Campground, but is more than 4 miles and 6 miles away, respectively. At such distances, the dam is barely perceptible without the aid of binoculars. The other facilities are not visible. The 2 dams are visible from adjacent areas of the lake surface and are seen by boaters, water skiers, and jetskiers/PWC users. The top of the spillway and portion of the intake structure that is above water are also visible from the lake itself, but only in the immediate vicinity of Yale Dam; these components are not visible from most of the lake's 3,800-acre surface. The Merwin-Yale 115 kV transmission line is visible from Merwin Park at the Merwin Project. The Swift No. 2 powerhouse, transmission line, and power canal, all part of the Swift Project, are visible from the

entrance road to the Beaver Bay Campground area and from the surface of Yale Lake near the campground.

9.1.2 Visual Assessment of Lake Level Fluctuations

The purpose of the assessment of aesthetic consequences of lake level fluctuations is to document the appearance of Yale Lake at full pool and minimum pool, and describe and compare the visual character of the lake under both conditions.

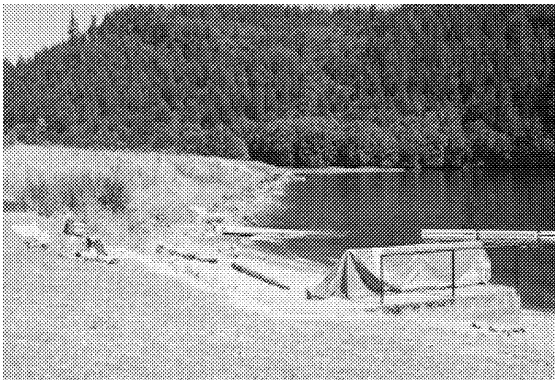
PacifiCorp maintains Yale Lake at a normal maximum pool of 490 feet msl (spillway elevation) and a normal minimum pool of 470 feet msl. A summertime recreation pool of between 480 feet and 490 feet msl is maintained to accommodate public recreation use during the peak season from Memorial Day to Labor Day. This practice maintains the highest visual quality of the reservoir during the period when the vast majority of viewers are present. During the fall/winter drawdown, the lake is lowered 20 vertical feet. The drawdown process begins in late fall, with minimum pool level reached several weeks after Labor Day. The reservoir is filled again in early spring, reaching full pool conditions prior to Memorial Day.

During the peak recreation season (Memorial Day weekend to Labor Day weekend), the average number of visits per day to developed recreation sites at Yale Lake is 2,853. During the non-peak season (Labor Day to Memorial Day), the number drops to an estimated total of 631, a 78 percent decrease (see Section 7.0 - Recreation Resources for more detail). The non-peak season includes the weeks immediately after Labor Day and prior to Memorial Day when good weather may encourage people to visit the lake. The lake surface would be closer to full pool than minimum pool during these times. At mid-winter, when the lake has reached minimum pool, numbers of visitors are at their lowest.

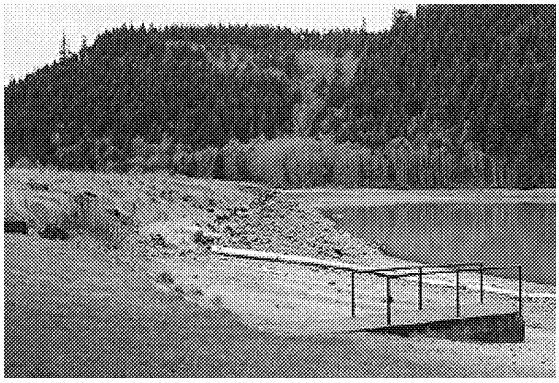
9.1.2.1 Approach

The study area for the visual assessment of lake level fluctuations was concentrated on the near-shore areas of Yale Lake as viewed from primary public use locations at Saddle Dam Campground, Yale Park, Cougar Campground/Park, and from the Lewis River Road.

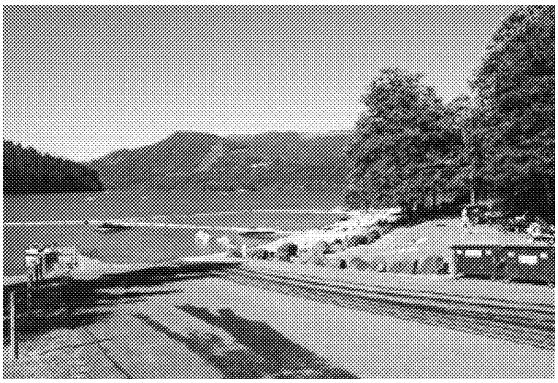
The approach to assessing lake level fluctuations involves photographing the lake under maximum and minimum pool conditions, with emphasis on near-shore locations popular with recreationists, and then comparing the photographs. Photographs were taken at approximately full pool conditions (480 feet to 490 feet msl during the summer recreation season), and again from the same locations when the lake was in a typical state of drawdown (approximately 470 feet msl in winter). Photographs from each location (full pool and minimum pool) were then compared, with observed differences described in relative terms. Figure 5.1-1 depicts the shoreline location at full and minimum pool. Figures 9.1-1 through 9.1-5 contain the comparative photographs of the reservoir under high and low pool conditions.



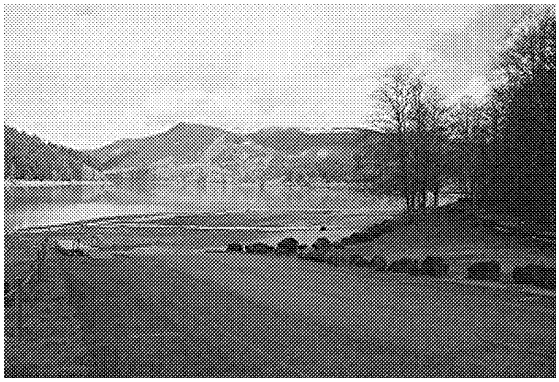
High pool conditions.



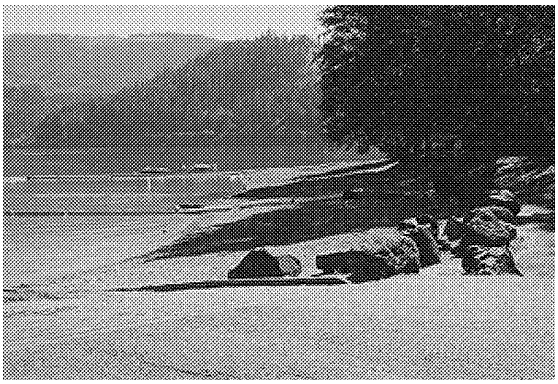
Low pool conditions



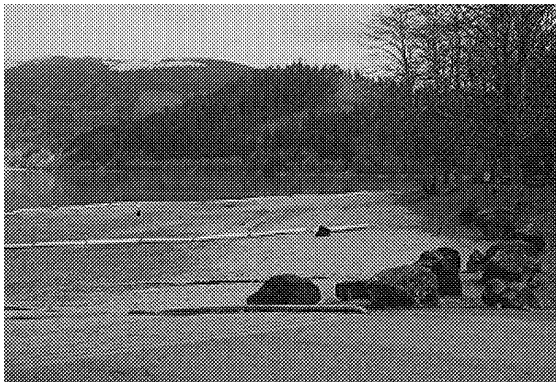
High pool conditions.



Low pool conditions.

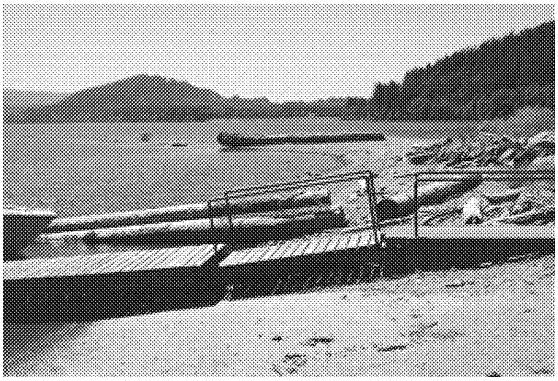


High pool conditions.

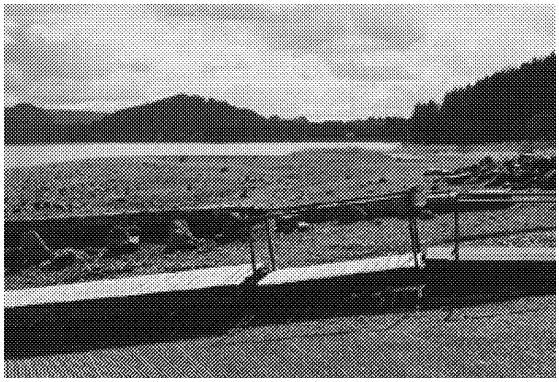


Low pool conditions.

Figure 9.1-1. Comparative photographs of high and low pool conditions from Saddle Dam recreation area.



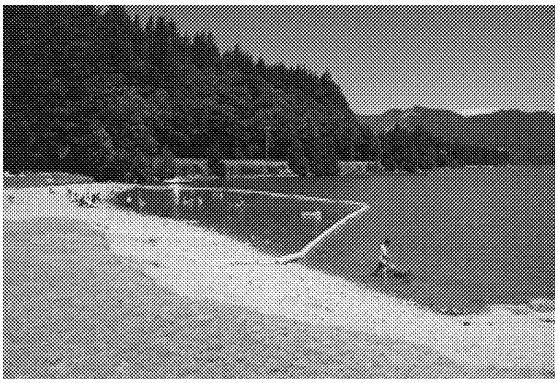
High pool conditions.



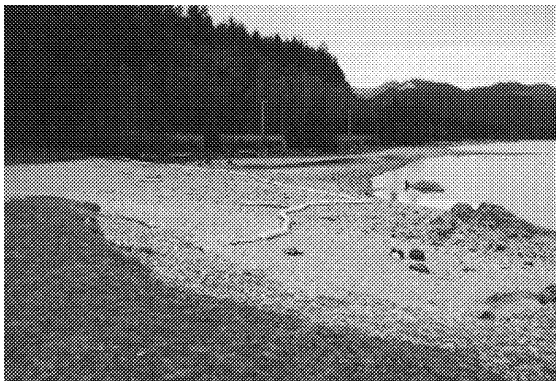
Low pool conditions.

High pool conditions.

Low pool conditions.

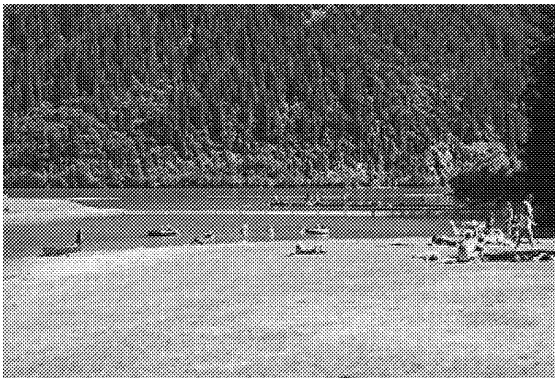


High pool conditions.

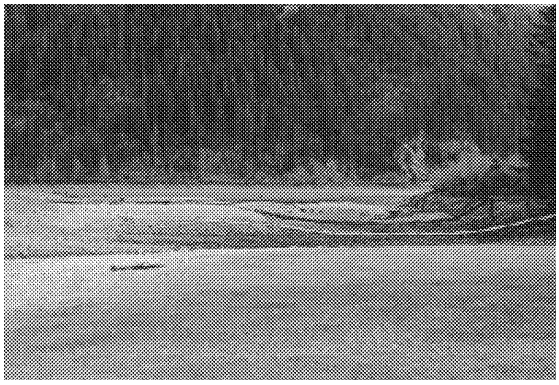


Low pool conditions.

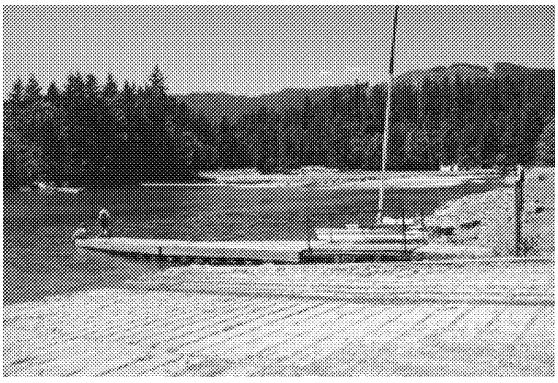
Figure 9.1-2. Comparative photographs of high and low pool conditions from Yale Park recreation area.



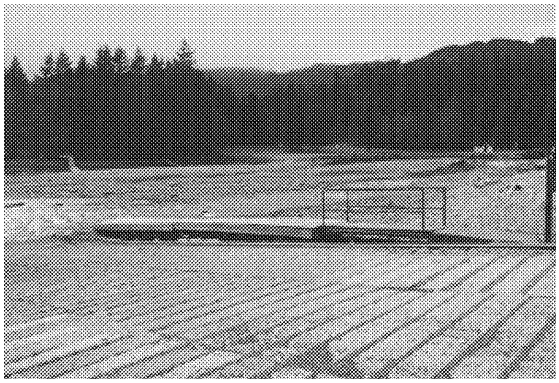
High pool conditions.



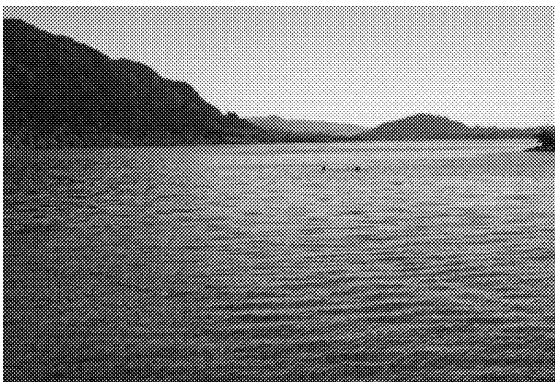
Low pool conditions.



High pool conditions.



Low pool conditions.



High pool conditions.

Low pool conditions.

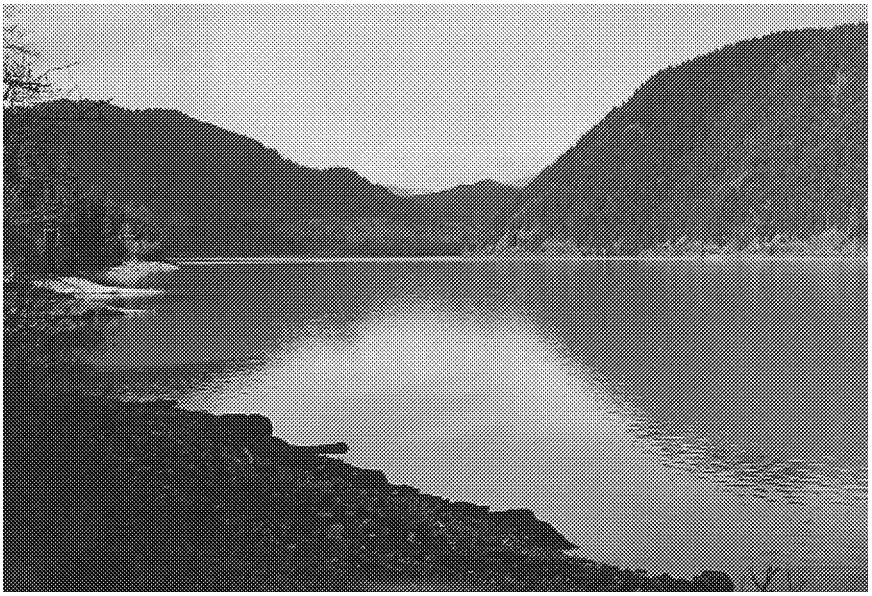
Figure 9.1-3. Comparative photographs of high and low pool conditions from Cougar Park recreation area.

High pool conditions.

Low pool conditions.

Figure 9.1-4. Comparative photographs of high and low pool conditions from Highway 503.

High pool conditions.



Low pool conditions.

Figure 9.1-5. Comparative photographs of high and low pool conditions from Highway 503.

9.1.2.2 Character of the Reservoir at Maximum and Minimum Pool

On July 11 and 12, 1996, photographs of Yale Lake were taken from specific points at the boat launches at Saddle Dam Campground, Yale Park, Cougar Campground/Park, and from the Lewis River Road. They represent the appearance of shoreline areas under typical summer, full pool conditions. The photographs were oriented toward the near-shore areas looking along the shoreline. The camera stations were documented for use later in the season in re-photographing the scenes under minimum pool conditions. In April 1997, photographs of Yale Lake under minimum pool conditions were taken from the previously established camera stations. Based on an analysis of the 2 sets of photographs, the following differences in visual character were identified.

Conditions vary depending on the location. However, in general, at maximum pool, little of the lake bottom is exposed at the shoreline. Sand bars are exposed in some places, for example west of the boat ramp at Yale Park. The lake bottom can be seen in shallow areas, particularly in and around the places where swimming is allowed. Accumulated driftwood appears along the shore in many areas.

At minimum pool, areas of near-shore lake bottom are exposed at all of the developed recreation sites. On average, these areas are estimated to extend about 10 to 40 feet out from the location of the summertime shoreline, but in some places extend much farther. Exposed areas are often nearly flat to gently sloping and are mostly covered with gravel, allowing access to the water's edge. Among the recreation sites, the most extensive areas are exposed at Cougar Park, including the entire bay where swimming occurs in summer. Many tree stumps are exposed in this area. At Saddle Dam, only a few tree stumps in the area near the swimming beach are exposed. At Yale Park, there are no exposed tree stumps.

As mentioned previously, views of the lake from the Lewis River Road are limited by trees and brush. In locations where openings occur and the lake is in view, areas of exposed lake bottom can be seen, including some that contain groves of tree stumps. Conditions associated with drawdown, however, are much less evident from the road than from recreation sites located at the shore.

Due to the extent and character of exposed lake bottom, the visual quality of the reservoir is lowest when its surface is at minimum pool. Conversely, visual quality is highest when the reservoir is at full or near-full pool. Since minimum pool conditions typically occur during the time when the fewest number of people visit the lake, the impact is minimized.

9.1.3 Visual Resource Objectives, Policies, and Guidelines

The study area extends onto federal Monument lands immediately north of Beaver Bay Campground and the Swift No. 2 power canal. Federal lands within the Monument are managed by an administrative unit of the GPNF. Management decisions are made in accordance with the Mount St. Helens National Volcanic Monument, Final EIS Comprehensive Management Plan (USFS 1985). The Yale Project has no facilities in this area. Additionally, facilities associated with other projects cannot be seen from

Monument lands that are within the study area. Therefore, federal visual resource plans and policies do not apply to the Yale Project.

The study area includes state DNR Siouxon lands along the eastern shore of Yale Lake. These DNR lands are managed in accordance with the Forest Resource Plan - Policy Plan (DNR 1992) and Siouxon Landscape Plan (DNR 1996). The DNR does not have policies established under the Forest Resource Plan for visual resource management but is developing procedures for visual management as part of landscape planning. Visual management within the study area will be addressed by DNR after statewide policies are established. DNR recently harvested timber near Yale Lake. The Conceptual Ten Year Harvest Plan (DNR 1996) calls for several more areas of timber harvest near and along the shore of Yale Lake through 2009. These timber harvests use clear-cutting techniques and are visually prominent within and adjacent to the study area.

Aesthetic resource management in the vicinity of the Yale Project is primarily the responsibility of 2 local county governments: Clark and Cowlitz counties. The south and eastern shores of Yale Lake are located in Clark County while the north and western shores are in Cowlitz County. All of PacifiCorp's 5 developed recreation facilities associated with the Yale Project are in Cowlitz County. Siouxon County Park, an undeveloped site on the eastern shore of Yale Lake, is located in Clark County. Yale hydroelectric facilities are located entirely within Clark and Cowlitz counties.

County visual resource issues are addressed only indirectly in officially adopted plans, including county comprehensive plans and shoreline management master programs. These plans were developed by the counties in accordance with the State of Washington State Planning Enabling Act, Growth Management Act, and Shoreline Management Act. The plans do not contain objectives, policies, or guidelines specifically addressing visual resources.

9.1.4 Compliance With Visual Resource Objectives, Policies, and Guidelines

Continued operation and maintenance of the Yale Project would not conflict with any visual resource objectives, policies, or guidelines currently in place at the federal, state, or local levels. Routine repair, replacement, and continued operation of the existing Yale Project facilities would be consistent with current regulations regarding visual resources.

9.1.5 Existing Measures

PacifiCorp maintains Yale Lake at a normal maximum pool of 490 feet msl (spillway elevation) and a normal minimum pool of 470 feet msl. A summertime recreation pool of between 480 feet and 490 feet msl is generally maintained to accommodate public recreation use during the peak season from Memorial Day to Labor Day. This practice maintains the highest visual quality of the reservoir during that period when the majority of viewers are present.

9.2 PROPOSED ENHANCEMENT MEASURES

PacifiCorp addressed issues related to aesthetics during the relicensing process. Applicable plans and polices were reviewed to determine compliance with land and resource management regulations. This analysis showed that the project would not adversely affect aesthetics, or conflict with applicable plans or policies. Therefore, no enhancement measures have been proposed.

9.3 ENHANCEMENT MEASURES NOT INCLUDED IN PACIFICORP PROPOSAL

No proposed visual resource measures have been specifically identified by agencies, tribes, or other interested parties during the relicensing process. As a result, no enhancement measures have been excluded.

9.4 AGENCY AND TRIBAL CONSULTATION

Consultation with resource agencies has been an ongoing part of the relicensing effort. No major issues concerning aesthetics were raised during the first or second stages of consultation (Appendix 1.3-1).

9.5 CONTINUING IMPACTS

The continued operation of the project would not have an impact on visual resources. The project will continue to be in compliance with applicable management plans.