Lake Chelan Hydroelectric Project
Socio-Economic Study Element

Final Report

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Prepared for the

Public Utility District No. 1 of Chelan County

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1 Executive Summary

1.1 Study Purpose

The primary objective of this report is to evaluate the impact of the current Lake Chelan water budget allocations on tourism, recreation and irrigation in the Lake Chelan area. However, the impact of the lake levels must be evaluated within the context of overall future development opportunities. Therefore, a secondary objective of this study is to develop an understanding of the economic development opportunities that exist in the Lake Chelan area. These objectives are briefly reviewed in this executive summary.

1.2 Overall Economic Development Conclusions

The Lake Chelan area[1] economy generated sales of approximately $274 million in 1998. This economic activity created 5,151 jobs with a wage and salary income of nearly $75 million. Agriculture and tourism dominate the economy.

Agriculture directly accounted for approximately $70 million or 26% of the total area sales in 1998/99, 41% of employment (2,108 jobs) and 34% of wage & salary income ($25.7 million).

Direct tourist expenditures accounted for nearly $50 million or nearly 18% of total sales, 19% of employment (1,000 jobs) and 18% of wage & salary income ($13.2 million).

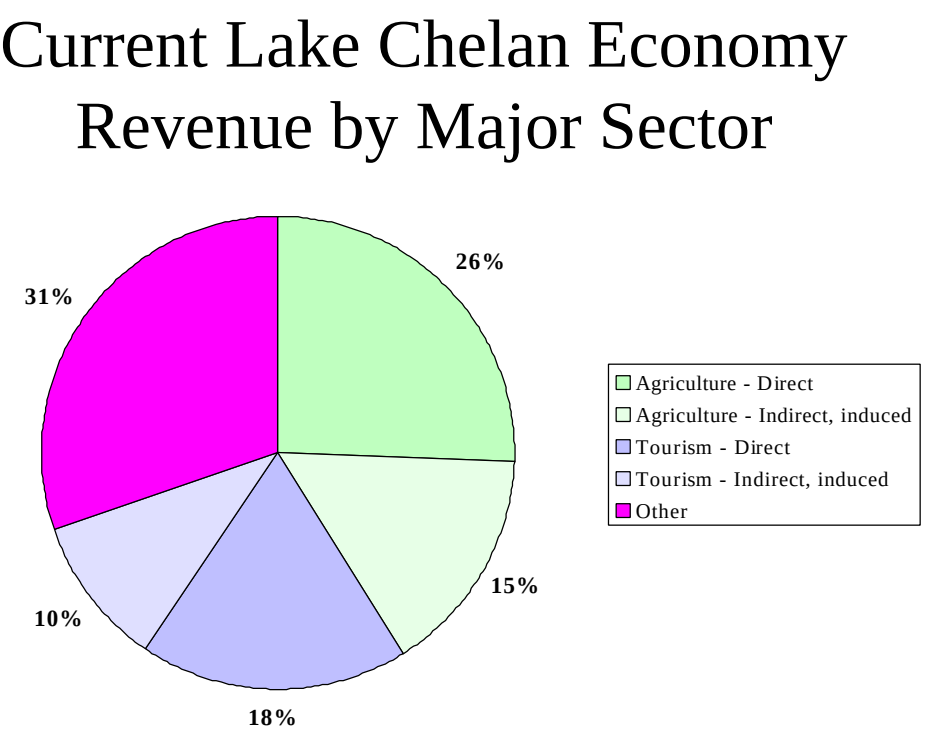
Other sales include indirect and induced multiplier effects (that is purchases of goods and supplies by employees as well as purchases by the firms) from the two main industries as well as sales to other citizens not directly employed by firms in either industry.

Figure 1 illustrates the relative importance of the tourism and agricultural sectors. Taking into account the direct, indirect and induced effects of these two sectors, agriculture and tourism combine to account for as much as 70% of total revenue, 91% of employment and 76% of payroll.

The agricultural sector is approximately 50% larger than the tourism industry at the present time in terms of sales but nearly twice as large in terms of employment and payroll. If tourism were to grow at 2% per year in real terms and the agricultural sector remained at the same level; it would take slightly less than 20 years for tourism to overtake agriculture in sales revenue. Both sectors are vital to the economy of the Lake Chelan area.

[1] The Lake Chelan area has been defined to include Chelan, Chelan Falls, Manson and Stehekin

Figure 1 – Distribution of Revenue in the Lake Chelan Basin (1999 estimates)
Source: BST Associates



1.2.1 Agriculture

Agriculture has recently suffered from increased production and resulting lower prices. However, it is likely that agriculture will rebound from its current conditions and continue to be a vital part of the economy.

1.2.1.1 Historical Trends

Throughout the state, there has been a decrease in the total number of orchards but the total number of acres devoted to apple production has increased and the average size of the orchard has increased. Despite this trend, the average orchard in Chelan County is much smaller than the average orchard in the Yakima Valley. As a result, operating costs in Yakima are typically lower.

Until recently the Chelan growers have done an excellent job of selling Chelan Valley apples as the highest quality available, and have been able to command a premium price, but increasing domestic and international competition has made the premium price a thing of the past.

Problems with overseas markets have made the Chelan growers much more dependent on the domestic market. The domestic market in recent years accounted for 70% of sales, but in the last year or two has grown to 85% of sales.

1.2.1.2 Future Opportunities

Agricultural production in the Chelan Valley is not expected to increase significantly, but the value of production is expected to improve from the current low levels. The WSU Impact Center is projecting an increase in the average price of apples, which would have the effect of increasing the value of agricultural production in the Lake Chelan area to nearly $89 million (more than 25% above current levels).

There are some opportunities for orchardists to diversify into other products, including cherries, grapes and organic apples. However, if too much diversification occurs then the prices of these products could also be negatively impacted.

Opportunities to build on the successes of the tourism industry could positively impact agricultural interests. In this vein, consideration should be given to developing a vineyard with a wine tasting room, similar to that found throughout the region from Yakima to the Tri-Cities.

1.2.2 Tourism

Tourism in the Lake Chelan area has a relatively bright future.

1.2.2.1 Historical Trends

Chelan County ranked 18th among all counties in the Pacific Northwest region (defined as all of the counties in Washington, Idaho and Oregon) and 8th among Washington State counties in terms of the tourist expenditures in 1997 (the last year for which data is available).

The Lake Chelan area had estimated tourist expenditures of approximately $49.8 million, accounting for 0.3% of the PNW market, which level places the Lake Chelan area in 60th place among the PNW counties (if it were treated as a separate county). The Chelan Valley represents an estimated 25% of the Chelan County visitor market in terms of sales and 27% of jobs.

Annual growth in Chelan County visitor expenditures has ranged between 2.7% and 3.6% during the period 1993 to 1997 (0.3% to 1.2% after adjusting for inflation). Overall sales in visitor establishments in the City of Chelan increased 4% during this time period (1.6% per year after adjusting for inflation). However, sales at lodging facilities and at eating & drinking establishments were lower than in the county as a whole.

For every dollar spent on accommodations in the Chelan Valley, there is an additional $1.50 spent on other goods and services. In Chelan County, as a whole, there are $2.76 spent on other goods and services ($1.26 more than in the Chelan Valley) for each dollar spent on accommodation. There appear to be opportunities to improve visitor expenditures in the Lake Chelan area, especially in the areas of eating and drinking establishments, food stores and retail sales.

1.2.2.2 Market Characteristics

The primary market in the Lake Chelan area consists of visitors from Central Puget Sound. Households in the Central Puget Sound area (defined as the Seattle-Bellevue-Everett Metropolitan area) generated approximately 6.5 million trips greater than 100 miles to domestic destinations in 1995. Each household made approximately 5.5 trips per year on average. The Puget Sound Regional Council (PSRC) forecasts that households in Central Puget Sound will grow at approximately 1.5% per year during the next 20 years.

Approximately half of the trips in Washington State (1.7+ million trips) were between 300 and 499 miles round trip, which falls within the travel radius of Lake Chelan.

More than two-thirds of the trips in Washington State are by adults. Nearly half of the trips in Washington State were primarily for leisure activities. Approximately 29% of the trips are by adults with children under 18 years of age. The school age population is considered a mainstay of the Lake Chelan area. However, the limitations of summer break time and the relative size of the school age population should be considered in developing an economic development strategy for the Lake Chelan area. In the future, there will be an increasing number of adults travelling without school age children.

Trends toward more frequent/shorter duration travel combined with increased outdoor recreation are favorable for the Lake Chelan area, especially for the Central Puget Sound market.

1.2.2.3 Survey Results

Business survey respondents suggested a need for several types of businesses, including:

- A better variety of restaurants, including an upscale restaurant on the lake, more fast food and/or “all you can eat” outlets, more restaurants serving breakfast, and, new types of facilities such as a brewpub, among other requests.
- Additional recreational businesses and facilities, such as trails, golf courses, a marina and winter ski area among other types of facilities.
- A discount store, sports/recreation outlet, and a winery.
- Manufacturing or high-tech firms as well as a diversification into other forms of agriculture (grapes and Christmas trees) and a destination resort.
- In addition, many respondents mentioned the need to improve the recreational opportunities available for visitors.

1.2.2.4 Forecast of Tourist Industry

Visitor expenditures are expected to increase in real terms from $49.8 million in sales in 1998 to between $53.7 and $77.5 million in 2010 (adjusted for inflation). Jobs are expected to increase from 1,000 in 1998 to between 1,082 and 1,378 in 2010 under the low and high range forecast scenarios. Payrolls are expected to increase from $13 million to between $14 and $20 million by the year 2010.

As mentioned previously, Chelan County visitor expenditures increased by a real rate of growth of 1.6% per year between 1993 and 1997. The mid-forecast projects growth at slightly above this level.

The low forecast scenario presents a pessimistic assessment of the future activity of the Chelan Valley, with growth slightly above inflation. It is essentially a no-growth scenario.

The high growth forecast assumes that the Chelan Valley improves its market share of the PNW visitor market and expands its sales in eating & drinking establishments, food stores, and retail sales. This scenario also assumes that the shoulder season occupancy (especially in the Spring and early Summer) and average room rates will improve from current conditions.

1.2.3 Conclusions

Agriculture and tourism will likely continue to dominate the Lake Chelan economy. From an economic development perspective, it is imperative that both of these sectors in the Lake Chelan area should be strengthened and those opportunities to benefit between sectors be promoted.

In addition, where viable, other businesses should be further promoted and developed. Opportunities to marry the Lake Chelan area's excellent quality of life with "foot-loose" entrepreneurs in high-tech and other like endeavors should also be promoted.

Attracting new tourism – based businesses will likely be difficult given the short tourist season (e.g., less than four months). In order to cover fixed and variable costs over the season, new businesses need to generate additional cash flows from the local population base after the tourist season is over. However, due to its relatively small size and its proximity to larger shopping areas, Chelan cannot support many new businesses from local market sales. Extending the tourist season would be helpful in increasing the revenues from the tourist economy and is the best way to increase the size of the tourism industry.

1.3 Impacts from Changing Lake Levels

The Lake Level Committee has been discussing several proposals with Chelan PUD staff. Proposal number 2, which was advanced in August of 1999, has a goal of reaching:

- 1,090.4 feet - 25 percent of the time,
- 1,089.5 feet - 50 percent of the time,
- 1,088.0 feet – 75 percent of the time, and,
- 1,087.5 feet - 90 percent of the time by May 1.

To offset the effects of higher lake levels in the spring, the recommended target elevations would be 0.5 feet lower in August and 1.0 feet lower from September through December.

However, the ability to reach certain elevations on May 1st is contingent on the weather (and runoff) conditions of the basin and will vary from year to year.

There appears to be strong support for the Lake Level Committee's recommendations from the business community, as evidenced by 70% of the initial survey respondents concurring with the Lake Level Committee and only one respondent to the second lodging survey indicating that they did not support the Lake Level Committee's recommendations.

1.3.1 Impact Assessment

1.3.1.1 Potential Costs

Chelan PUD staff, in conjunction with the Lake Level Committee, have recently evaluated the potential lost power sales if the Lake Level Committee's recommendations were put into effect. The average annual cost is currently estimated to be approximately $218,275. However, this estimate is considered temporary until additional effort is undertaken to finalize the impact of alternative lake level recommendations upon lost power sales.

The net present value of the current estimated loss is estimated by discounting the annual real loss of power sales over 50 years at a real discount rate of 4.75% (e.g., used by Bonneville Power Administration in the Lower Snake River Salmon Juvenile Mitigation Feasibility Study). The net present value of the lost gross power sales is approximately $4.1 million.

1.3.1.2 Potential Benefits

Focusing on the shoulder months, Lake Chelan area lodging receipts are lower than most comparable areas in May but not in September. On average, May receipts in Chelan are approximately 1.1% lower than comparable competitive facilities. It is difficult to assess exactly what percentage of the increased May receipts are directly attributed to lake levels. However, there are strong arguments that a substantial percentage of the gain may be directly attributed to improved lake levels and subsequent improved access to lake facilities (e.g., boat ramps, marinas, fixed docks etc.).

The results of the **1998/1999 Recreation Use Assessment** (reviewed in Chapter 3), indicate that water-based activities accounted for 91% of all recreational activities, across all Lake Chelan facilities. Survey respondents who engaged in motor boating activities accounted for 49% of all recreational activities, respondents engaged in other water sports but not motor boating engaged in 42% of recreational activities. Only 9% of survey respondents indicated that they only engaged in non-water recreational activities. In addition, the recreation use assessment found that:

- Most recreational activity occurred in the downlake basin,
- The downlake basin is nearing or exceeding capacity in the peak season both in the upland facilities and in the water area at the present time,
- Virtually all access to the uplake basin was by boat, and,
- One of the major complaints by recreational users in the Spring was lack of high water because of lower lake levels, which made water access to ramps and marinas more difficult.

As a result of these recreation survey responses, it could be argued that lake level accounts for between 49% (motor boat only) and 91% (all water sports) of recreational activity in the spring and early summer.

As a result, we estimate that 49% to 91% of the increased visitor expenditures during the month of May could be attributed to lake levels. If 1.1% in additional revenues occurred, the Lake Chelan area would experience an annual gain in lodging industry revenues of $523,000. The conservative estimate of potential benefits (increased tourist sales) attributable to lake levels is $256,491 per year. In addition, tourist expenditures at lodging facilities account for only 56% of overall tourist expenditures. The remaining 44% are generated by tourists staying at second homes, with friends/relatives and at campgrounds. The adjusted annual revenues from all accommodations is $458,019. The net present value of these gross receipts is estimated to be $8.7 million over the 50-year life of the relicense.

1.3.1.3 Benefit Cost Comparisons

Using the highest estimate of cost (in terms of lost power sales) and attributing 49% of benefits to lake levels, benefits exceed costs by a factor of more than 2 to 1 for gross revenue comparisons.

1.3.1.4 Comparison of Reasonability

Another way to judge the reasonability of the benefit estimates is to calculate the number of visitor days required to compensate for lost power sales. If the lost power sales are $218,275 per year, then it will require an estimated 7,276 visitor days to compensate, based upon an average visitor expenditure of $30.

The average number of people per day at downlake sites is 4,414 during the peak season and 1,223 during the off season, according to the **1998/1999 Recreational Use Assessment** conducted by Howe Consulting, Inc and Duke Engineering & Services, Inc for Chelan PUD. Dividing the required number of days by the average use suggests that the highest lost power sales can be compensated for by an additional 1.6 days of use during the peak season and 5.9 days during the off season.

2 Introduction & Report Organization

2.1 Purpose of the Study

The Public Utility District No. 1 of Chelan County regulates Lake Chelan as a dam reservoir, typically between elevations of 1,087[2] feet and 1,100 feet. The water level is maintained at a higher level from approximately mid-May through early September. After Labor Day, the water level is drawn down until the next year.

There are concerns among some stakeholders that current operations negatively impact tourism, recreation and irrigation and that changing water budget allocations to achieve a higher water level earlier in the year and/or maintaining it later in the year would enhance these activities.

The primary purpose of this report is to evaluate the impact of current Lake Chelan water budget allocations on tourism, recreation and irrigation in the Chelan area. A secondary purpose of this study is to develop an understanding of the economic development opportunities that may occur in the Lake Chelan area.

2.2 Study Methodology

The methodology consists of the following steps:

- Document the overall historical trends of uses in the area, focusing on:
  - Tourism and recreation, and,
  - Agriculture.
- Identify the user and community perceptions relating Lake water levels to activity levels in the above sectors,
- Determine the potential for expansion of existing markets as well as the potential development of new markets under various water levels, and
- Identify and estimate the economic impacts of changes in lake levels on the Lake Chelan Basin area.

2.3 Study Area

The study area is defined to include the project boundary and communities immediately adjacent to the boundary as well as those communities that are likely to be directly impacted by project operations. The project boundary extends along the 1,100-foot contour from the upper end of the lake near Stehekin to the City of Chelan. The boundary continues down both sides of the bypass reach to the confluence of the Chelan and Columbia rivers.

[2] The minimum lake elevation is 1,079 but this level is rarely reached. In addition, normal maximum pool levels are defined as elevation 1,098.

2.4 Report Organization

2.4.1 Executive Summary

This chapter provides an overview of key study results. The following chapters document study results.

2.4.2 Introduction & Report Organization

The second chapter is intended to describe the purpose as well as the organization of the report.

2.4.3 Inventory of Water-Based Facilities and Activities

The third chapter seeks to identify and describe all of the water-based uses and activities in the area, which are directly or indirectly impacted by project operations and related lake levels.

The goal of this chapter is to document the potential waterfront structures and uses that are directly or indirectly impacted by project operations and related lake-levels. This chapter also reviews the current water budget allocations at Lake Chelan.

2.4.4 Overall Trends and Forecasts

The fourth chapter documents current and potential future economic conditions in Chelan County and, specifically, in the Lake Chelan area. This chapter presents a detailed assessment of development of the local economy, focusing on historical trends in:

- Population and demographic characteristics,
- Income characteristics by source of income (wage and salary, retirement, investments, and transfers),
- Characteristics of the civilian labor force,
- Unemployment and employment rates, and,
- Employment by sector.

The goal of this chapter is to document how the Chelan economy has changed over time and achieved its current level.

2.4.5 Competitive Evaluation & Case Studies

The fifth chapter presents the results of a survey undertaken with members of the business community. The goal of the survey was to evaluate business characteristics as well as to fully appreciate perceptions regarding the impacts of lake levels on the local economy.

2.4.6 Future of Agriculture in the Chelan Area

The sixth chapter presents an overview of the agricultural sector in Chelan County. It presents historical trends and provides a forecast of future agricultural activities, drawing heavily on

recent studies by the Washington State University's IMPACT Center. Specifically, this chapter also provides a forecast of the agricultural sector in the Chelan area.

2.4.7 Future of Tourism in the Chelan Area

The seventh chapter presents an overview of the tourism sector in Chelan County. It presents a historical context that documents the Chelan Area's market share of tourism, and specifically, how these markets are expected to change in the future. It also provides a forecast of tourism in the Lake Chelan area, including the following business sectors:

- Recreational services,
- Lodging and accommodations,
- Retail (eating and drinking establishments, food stores, miscellaneous retail)

2.4.8 Lake Level Impacts

The final chapter presents an estimate of the positive and negative impacts related to potential changes in the lake levels. The proposed methodology consists of realistically estimating the potential for revenue increases and/or cost decreases associated with changed water levels associated with the following factors:

- Potential loss in power sales (determined by PUD staff), as compared with
- The potential increase in revenues from agriculture and tourism.

3 Inventory of Water-Based Facilities, Uses and Lake Level Conditions

The following chapter documents those facilities and uses, which are impacted by lake levels, as well as evaluating existing and proposed lake level conditions.

3.1 Inventory of Waterfront Facilities

This section provides a description all of the waterfront structures and facilities in Lake Chelan, which are directly or indirectly impacted by project operations and related lake level elevations.

3.1.1 Downlake Public Recreation Sites[3]

This section briefly describes the downlake parks located in the Lake Chelan area, which includes the area from Twenty-Five Mile Creek State park on the southshore of the Lake around to Willow Point Park, near Manson. These facilities are all accessible by car. The map on the following page identifies where each recreation site is located. The information provided in this section comes from the **1998/1999 Recreational Use Assessment** prepared for Chelan PUD by Howe Consulting, Inc. and Duke Engineering & Services, Inc.

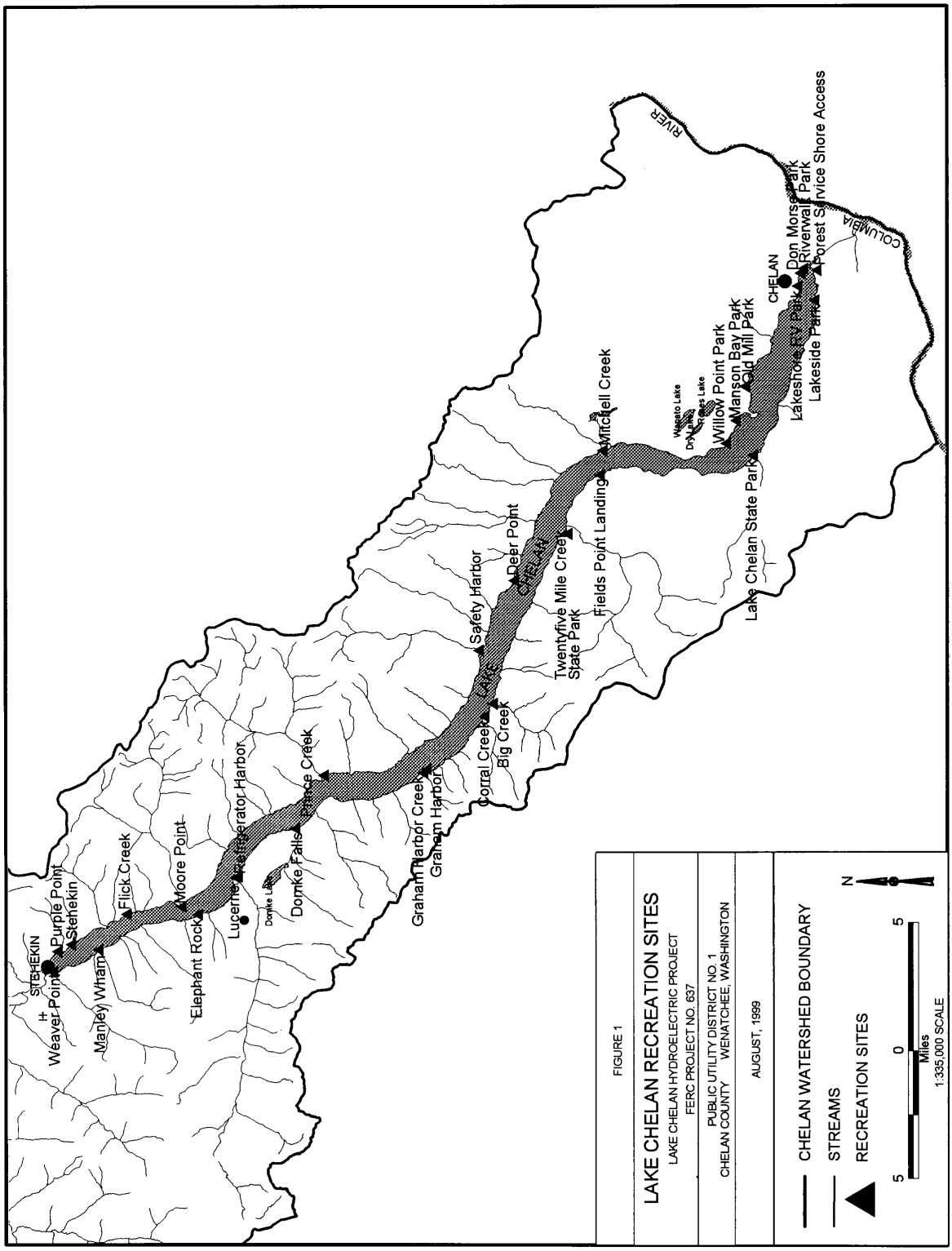
3.1.1.1 Twenty-Five Mile Creek State Park

Twenty-Five Mile Creek State Park occupies 235 acres on the south shore of Lake Chelan on South Shore Drive approximately 18 miles north of the town of Chelan. Twenty-Five Mile Creek borders the park on the north. The park has 1,500 feet of waterfront on Lake Chelan, 63 standard campsites, 23 campsites with utilities, a group camp site, a day use area with six picnic sties, a grocery store, two comfort stations a boat marina with docks and piers, a boat launching ramp, and a marine gasoline pump. The site has 34 vehicle/trailer parking spaces, and 5 day use parking spaces. The marina was recently remodeled with 37 slips, which are accessible between elevations 1,091 and 1,095 feet[4]. The boat ramps have uneven surfaces, broken concrete planks, and are built at a poor angle. A fee is charged for the use of the boat ramp ($4.00).

The estimated daily (and overnight) capacity of the site is 460 people at the campground and 240 people for the day use areas of the park. The estimated average overnight use by month for the campground was below the estimated capacity of the site during the peak season. The estimated average weekend and weekday overnight and day use in the fall and spring was well below the estimated capacity of the site. The greatest estimated use at the site during fall monitoring was on a weekend day in mid-September with an estimated 40 overnighters and 130 day users. The greatest estimated use at the site during spring monitoring was on a weekend day in mid-May with 7 overnighters and 55 day users.

[3] The source for most of this information is the **1998/1999 Recreational Use Assessment** prepared by Howe Consulting, Inc. and Duke Engineering & Services, Inc. (dated November 1999).
[4] Source: Personal conversation with Mr. Bob Harris

Figure 2 – Location of Lake Chelan Recreation Sites



3.1.1.2 Fields Point

Fields Point Landing consists of approximately 17 acres and is the last uplake car-access stop of the Lady of the Lake Ferry. Fields Point was developed jointly by the US Forest Service (USFS) and the National Park Service (NPS) to provide orientation and secure parking for visitors to Lake Chelan and the uplake areas. Facilities include picnic areas, restroom facilities, an information center building with snacks, souvenirs and recreation information, and 420 parking spaces.

The estimated daily capacity of the site is 1,260 people. Estimated peak season weekday and weekend average daily use was below the estimated daily capacity of the site. The estimated average daily weekend and weekday use in the fall and spring was well below the estimated daily capacity of the site. The greatest estimated use at the site during the off-season monitoring was in the spring on a weekend day with an estimated 325 people.

3.1.1.3 Lake Chelan State Park

Lake Chelan State Park occupies 126-acres on the southshore of Lake Chelan, nine miles from the town of Chelan. The park features 6,454 feet of waterfront on Lake Chelan and 1,640 feet of stream frontage on First Creek. Park facilities include 144 campsites (including full hook-up sites), a day use area with children's playground, a guarded swim beach, 52 picnic sites, a concession/store, horseshoe pits and a small softball diamond, five restroom buildings with hot showers, a boat launch with parking space for 28 vehicles/trailers, and 52 day use parking sites. The park is owned and operated by Washington State Parks and Recreation Commission.

The boat ramp is very small, consisting of a concrete ramp and two loading floats. The turn around at the ramp is also compact. The wood pilings need protection.

The estimated daily (and overnight) capacity of the site is 720 people at the campground and 560 people for day use areas of the park. The estimated average overnight use by month for the campground was below the estimated capacity of the site. Estimated weekday and weekend average overnight use was also below the estimated capacity of the site.

The estimated average weekend and weekday overnight and day use in the fall and spring was also below the estimated capacity of the site. The greatest estimated use at the site during the fall season was on a weekend day in mid-September with an estimated 555 overnighters and 1,036 day users. The greatest estimated use at the site during the spring season was on a weekend day in mid-May with 325 overnighters and 650 day users. The estimated day use during these days exceeded the estimated day use capacity.

3.1.1.4 Chelan Riverwalk Park

Chelan Riverwalk Park is owned and operated by Chelan PUD. The day use park was completed in 1986 and is open year-round. The 12-mile park is located in downtown Chelan. The park consists of a one-mile scenic loop trail, boat launch, short-term moorage, boat trailer parking, grass playfield, restrooms, picnic areas with eight picnic tables and a picnic shelter. The

pavilion/picnic area has 90 parking spaces and the boat launch has 14 vehicle/trailer parking spaces plus 4 designated on-street vehicle/trailer parking spaces.

The boat ramp has a moderate grade with good traction. There is no overnight moorage and the site is open from 7:00 A.M. to 10:00 P.M. The estimated daily capacity at the boat launch is 108 people. The estimated daily capacity of the Park walkways and pavilion areas is 540 people. The boat launch exceeds its estimated capacity frequently during the peak season and sometimes during the off-peak season.

3.1.1.5 USFS Shore Access

The USFS Shore Access site is a small day use area operated by the U.S. Forest Service. The site is located about 200 feet to the east of Chelan Riverwalk Park and immediately adjacent to State Highway 97 and the U.S. Forest Service Chelan Ranger Station. The site has flush toilets and is used as a shore access point. Parking is available on SR 97.

The estimated daily capacity of the site is 75 people. Based on monitoring during the peak-season, the estimated average daily use by month was well below the estimated daily capacity of the site, with July having the greatest estimated daily use of 33 people per day. Few visitors were observed during the fall and no visitors were observed at the site during the spring monitoring efforts.

3.1.1.6 Lakeside Park

Lakeside Park occupies 10 acres on the south shore of Lake Chelan along State Route 97A, about one mile west of downtown Chelan. The day use park has restrooms, a volleyball court, basketball court, picnic shelter, children's play area, sand beach and swimming area, and picnic areas. The site is owned and operated by the City of Chelan. Parking is along Terrace Avenue and Johnson Place. Improvements were completed on Terrace Avenue in the summer of 1999. With the improvements completed, the total number of parking spaces available is 115.

The boat ramp, which consists of two concrete ramps and two floating docks, has a moderate grade with adequate traction on the upper ramp. Lakeshore Marina also offers boat moorage. The marina is located next to Don Morse Park and a Putt-Putt golf course/go cart track/bumper boat complex. A fee is charged from mid- May to Labor Day ($3.00). Launching and loading is free when the marina is not staffed.

The estimated daily capacity of the site is 860 people. The use of the site was typically below the estimated capacity except for September.

3.1.1.7 Lakeshore RV Park

Lakeshore RV Park occupies 20 acres on the shore of Lake Chelan, next to Don Morse Memorial Park in downtown Chelan. The park is owned and operated by the City of Chelan. Access to the site is from Highway 150. Facilities include a Parks and Recreation Office, maintenance shop with gas pump and storage, restrooms and shower buildings, and 160 RV camping sites with cable TV, water, sewer and electrical service.

The estimated daily (or overnight) capacity of the site is 800 people. Based on observations during the peak-season, the estimated average daily use by month was below the estimated daily capacity of the site. Estimated daily use during the months of July and August were at 92 percent and 90 percent of the site capacity. Estimated peak-season weekday and weekend average daily use was below the estimated daily capacity of the site. The estimated average daily weekend and weekday use in the fall and spring was well below the estimated daily capacity of the site. Fall showed greater use than spring.

3.1.1.8 Don Morse Memorial Park

Don Morse Memorial Park occupies 20 acres on the shore of Lake Chelan, in between Lakeshore RV Park and the Lakeshore Marina Complex in downtown Chelan. The day use park is owned and operated by the City of Chelan. Access to the site is from Highway 150. Facilities include a guarded swim area, a beach bulkhead, day use area, picnic areas, a bandstand, lighted tennis courts, sand volleyball courts, basketball courts, children's play area with playground equipment, concession and restroom building, paved pathways, a bumper boat pool, 18 hole putting course, office building, and the "rally alley" race track. The Park has 130 parking spaces available in the main parking lot, which is a pay parking lot unless you are a resident of the town of Chelan. Additional parking is also available on a first come-first serve bases in the adjacent Lakeshore Marina Park and on nearby streets. Many people walk to the site from nearby motels/resorts, from Lakeshore RV Park, and from residents in the town of Chelan.

The estimated daily capacity of the site is 1,200 people. Visitor activity exceeded capacity during the Fourth of July period and in September but not in other parts of the year. The estimated average daily weekend and weekday use in the fall and spring did not exceed the estimated daily capacity of the site.

3.1.1.9 Old Mill Park

Old Mill Park is located two miles east of Manson. The park occupies 20 acres with access off of Highway 150. Facilities at the park include a four-lane boat launch, short-term moorage, a marine dump station, picnic area, fish cleaning station, and restrooms. The day use area has eleven vehicle parking spaces and the boat launch area has 146 vehicle/trailer parking spaces. Old Mill Park is owned by Chelan PUD and managed by the Manson Park and Recreation District.

The boat launch has four ramps with three loading floats. According to the IAC, the boat ramp is in good condition with a moderate grade and adequate traction. Old Mill Park also has a day-use area that offers picnic tables, BBQ grills, lawn areas, and a fish cleaning station.

The estimated daily capacity of the site is 960 people. The estimated average peak season weekend use is 800 people per day and the estimated weekday use is 340 people per day. Out of 22 field observation days, the site exceeded its estimated capacity on two days. The estimated average daily weekend and weekday use in the fall and spring was well below the estimated daily capacity of the site. The greatest estimated use at the site during the off-season monitoring was in the fall on a weekend day in mid-September with an estimated 260 people.

3.1.1.10 Manson Bay Park

Manson Bay Park is located in downtown Manson. The day use park occupies 6 acres with access off of Highway 150. Facilities at the park include a lake overview, swim area, picnic area, restrooms, boat launch (winter only), and public boat docks. There are 10 parking spaces next to the park and an additional 15 parking spaces next to the docks and park office. Most of the use at the site is by walk-in from the nearby neighborhood.

The estimated daily capacity of the site is 250 people. The estimated average daily use by month was generally below the estimated daily capacity of the site, except during the month of July. The estimated average daily weekend and weekday use in the fall and spring was well below the estimated daily capacity of the site.

3.1.1.11 Willow Point Park

Willow Point is a 1.85-acre neighborhood/day use park located three miles north of Manson. The site has 500 feet of waterfront access and a picnic area. The park is surrounded by a residential area and steeply slopes from an existing county road toward the lake. Parking is available on the street for approximately 20 vehicles.

The estimated daily capacity of the site is 150 people. The estimated average daily use by month was below the estimated daily capacity of the site, except for September. The estimated average daily weekend and weekday use in the fall and spring was well below the estimated daily capacity of the site. The greatest estimated use at the site during the off-season monitoring was in the fall on a weekend day in mid-September with an estimated 24 people.

3.1.2 Uplake Public Recreation Sites

Uplake sites are not car accessible. They are primarily owned and operated by the USFS and NPS. The following section reviews the characteristics and use of these facilities, starting at Mitchell Creek and moving up and around Stehekin down to Big Creek

3.1.2.1 Mitchell Creek

Mitchell Creek is a USFS boat-in rustic camping and day use site. Facilities include one shelter, seven tables, seven fire rings, two toilets and a floating dock with capacity for about 17 boats. The estimated daily capacity of the site is 75 people. Based on monitoring during the peak-season and off-peak season, the estimated average daily use by month was below the estimated daily capacity of the site.

3.1.2.2 Deer Point

Deer Point is a USFS rustic boat-in camping and day use site. Facilities include five tent sites, five tables, five fire rings, two toilets, and one floating dock with capacity for about eight boats. The estimated daily capacity of the site is 35 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site during both the peak and off-peak seasons.

3.1.2.3 Safety Harbor

Safety Harbor is a rustic USFS boat-in camping and day use site. Facilities include four tent sites, two fire rings, two tables, one toilet and a floating dock with capacity for about six boats.

The estimated daily capacity of the site is 27 people. Based on monitoring during the peak-season, the estimated average daily use by month for the months of August and September (1-7) were above the estimated daily capacity of the site. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site. Estimated daily use during the off-season was well below the estimated capacity of the site. The estimated daily use in the spring, based on the spring weekend boat observation, was 13 people per day.

3.1.2.4 Prince Creek

Prince Creek is a rustic USFS boat-in camping and day use site, located approximately 17.2 miles from Stehekin Landing. The site can also be accessed from the Lakeshore Trail. Facilities include six tent sites, six fire rings, five tables, three toilets and a floating dock with capacity for about three boats. The estimated daily capacity of the site is 27 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site, during both peak and off-peak seasons.

3.1.2.5 Moore Point

Moore Point is a rustic USFS boat-in camping and day use site that can also be accessed by the Lakeshore Trail that follows the north side of the Lake from Stehekin Landing to Prince Creek. It is located approximately 6.9 miles from Stehekin along the trail. Facilities include one shelter, four tables, four fire rings, two toilets and a fixed dock with capacity for about three boats.

The estimated daily capacity of the site is 22 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site. The estimated daily capacity of the site was exceeded during one out of 12 field observation days (six boat observations and six traffic count days) on a weekend day in late August with an estimated 30 people on that day. Estimated daily use during the off-season was well below the estimated capacity of the site.

3.1.2.6 Flick Creek

Flick Creek is a rustic NPS boat-in camping and day use site, which is also accessible from the Lakeshore Trail. Facilities include one campsite, a pit toilet and boat dock. The estimated daily capacity of the site is 10 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site during both peak and off-peak seasons.

3.1.2.7 Purple Point

Purple Point is a developed NPS boat-in camping and day use site. It is the only campground located near Stehekin landing and is a good layover camp for hikers coming to or from the backcountry. Facilities include seven campsites, a pit toilet and boat dock with the capacity for 7

boats. Purple Point is the only NPS site on a permit system to limit the number of users at the site, due to the popularity of the site.

The estimated daily capacity of the site is 32 people. Based on monitoring during the peak and off-peak seasons, the estimated average daily use by month was below the estimated daily capacity of the site.

3.1.2.8 Stehekin

The boat-in NPS Stehekin day use area is large and developed with 3 picnic sites. Commercial boat access and a small airport is available at Stehekin Landing. Trails also provide access to and from nearby sites and the western side of the Cascade Mountains. The dock at Stehekin landing has the capacity for mooring approximately 40 boats.

The estimated daily capacity of the Stehekin day use area is 200 people. Estimated weekday average daily use was below the estimated daily capacity of the site, and estimated weekend average daily use was close to the estimated average daily capacity of the site during the peak season. Estimated daily use during the off-season was well below the estimated capacity of the site.

3.1.2.9 Weaver Point

Weaver Point is a large rustic NPS boat-in camping and day use site. Facilities include 22 campsites, pit toilets, and a dock capacity of 22 boats. The estimated daily capacity of the site is 99 people. Estimated weekday and weekend average daily use was well below the estimated daily capacity of the site during both peak and off-peak seasons.

3.1.2.10 Manley Wham

Manley Wham is a rustic NPS boat-in camping and day use site near Bridal Veil Falls. Facilities include one campsite, a pit toilet, and boat dock with capacity for two boats. The estimated daily capacity of the site is 9 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site during both peak and off-peak seasons.

3.1.2.11 Lucerne

Lucerne is a developed USFS boat-in camping and day use site. Commercial boat access is available at Lucerne, which is a staging area for visitors to Holden and Glacier Peak Wilderness. There are also private cabins and a Forest Service Guard Station at Lucerne. The Lucerne campground/day use site has two tent sites, two tables, two fire rings, two toilets and one dock and boat basin with capacity for about 11 boats.

The estimated daily capacity of the site is 22 people. Estimated average weekend use was above the estimated daily capacity of the site during the peak season. Estimated daily use during the off-season was well below the estimated capacity of the site.

3.1.2.12 Refrigerator Harbor

Refrigerator Harbor is a rustic USFS boat-in camping and day use site. Facilities include four tent sites, four tables, four fire rings, two toilets and a floating dock accessible year round with a capacity for about four boats.

The estimated daily capacity of the site is 18 people. Based on monitoring during the peak-season, the estimated average daily use by month was generally below the estimated daily capacity of the site, except for during the month of August. Estimated daily use during the off-season was well below the estimated capacity of the site. Based on the spring weekend boat observation, the estimated use during a weekend day in the spring was 2 people.

3.1.2.13 Domke Falls

Domke Falls is a rustic USFS boat-in camping and day use site. Facilities include four tent sites, three fire rings, four tables, one toilet and a floating dock with capacity for about six boats. The estimated daily capacity of the site is 27 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site during both the peak and off-peak seasons.

3.1.2.14 Graham Harbor Creek

Graham Harbor Creek is a rustic USFS boat-in camping and day use site. Facilities include one shelter, five tent sites, five tables, five fire rings, two toilets, and one fixed dock with a capacity for about six boats. The estimated daily capacity of the site is 27 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site during both the peak and off-peak seasons.

3.1.2.15 Graham Harbor

Graham Harbor is a rustic USFS boat-in camping and day use. Facilities include five tent sites, seven tables, six fire rings, two toilets and one floating dock with a capacity for about 10 boats. The estimated daily capacity of the site is 45 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site, during both peak and off-peak seasons.

3.1.2.16 Corral Creek

Corral Creek is a rustic USFS boat-in camping and day use site. Facilities include four tent sites, three tables, two fire rings, one floating dock with a capacity for about six boats. The estimated daily capacity of the site is 27 people. The estimated average daily use by month was below the estimated daily capacity of the site during both the peak and off-peak seasons.

3.1.2.17 Big Creek

Big Creek is a rustic USFS boat-in camping and day use site. Facilities include one shelter, four tent sites, four tables, four fire rings, two toilets and one fixed dock with a capacity for about

four boats. The estimated daily capacity of the site is 18 people. Estimated weekday and weekend average daily use was below the estimated daily capacity of the site during both the peak and off-peak seasons.

3.1.3 Public Boat Ramps

Table 1 lists the public boat ramps that are located within the study area. Five of these ramps are located on Lake Chelan, three are on the small lakes above Manson, and one is located on the Columbia River at Chelan Falls.

Table 1 – Public Boat Ramps in Study Area

Map #	Site Name	Site Manager	Nearest City	Launch Type
Lake Chelan				
15	Chelan Riverwalk Park	Chelan Co. PUD	Chelan	2 concrete ramps
16	Lakeshore Marina Park	City of Chelan	Chelan	2 concrete ramps
17	Old Mill Park	Manson Parks	Manson	4 concrete ramps
18	Lake Chelan State Park	State Parks	Chelan	1 concrete ramp
22	25 Mile Creek State Park	State Parks	Chelan	1 concrete ramp
Other Lakes				
19	Roses Lake	Fish & Wildlife	Manson	1concrete ramp
20	Wapato Lake	Fish & Wildlife	Manson	1 concrete ramp
21	Kamei Resort	Kamei Resort	Manson	1 concrete ramp
Columbia River (Lake Entiat)				
14	Chelan Falls	Chelan Co. PUD	Chelan	2 concrete

Source: Inter-Agency Committee for Outdoor Recreation

The boat ramps on Lake Chelan generally become usable between elevations 1,090 and 1,095 feet[5]. Most of the ramps are not usable at elevations below 1,090 feet.

There are also a number of private boat launches, including Darnell's Motel, Chelan Lakeshore Marina, Watson's Harverene Resort, Lake Chelan Shores, and Chelan Yacht Club, among others. These launches also generally become usable at elevations between 1,090 and 1,095 feet.

3.1.4 Marinas

Lake Chelan has a number of marina facilities, as described in Table 2. Most of the facilities are located in or near Chelan and Manson. Most of the marinas (many of which have private launching areas) are generally accessible at between an elevation of 1,090 to 1,095 feet[6]. For example, some slips may be usable at lower water levels such as 1,088 or 1,090 but in most cases, the slips are only fully accessible at 1,095 feet,

There are also a number of small destination boat moorage areas located in the uplake area, as demonstrated in the previous section. These facilities allow moorage for approximately 92 boats

[5] Source: Personal conversation with Mr. Bob Harris, owner of Harris Marina.
[6] Source: Personal conversation with Mr. Bob Harris, owner of Harris Marina.

at U.S. Forest Service facilities and 50 boats at National Park Service facilities. Approximately 58 boats can moor at a lake level elevation of 1,090 feet, 82 at 1,094 feet, 131 at 1,096 feet and the remaining 11 slips require a lake level of 1,098 feet to be fully usable.

On fixed docks, because of narrow sized boats and severe water drop off, the U.S. Forest Service feels there should be a certain amount of floating docks attached to the fixed docks, for use earlier in the season. The U.S. Forest Service also feels that floating docks require more maintenance. (See Table 3)

Table 2 – Lake Chelan Downlake Marinas

Name	Location	Approximate # of Boats	Water Accessibility (Feet)
25 Mile Creek State Park	25 Mile Creek State Park	37	1,095
Campbell's Lodge	Chelan	16	1,095
Crystal View Estates	Chelan	20	1,090
Darnell's Resort Motel	Chelan	25	1,095
Harris Chelan Marina	Chelan	37	1,095
Lake Chelan M & M Marina	Chelan	40	1,090/1,095
Lake Chelan Shores	Chelan	15	1,090
Lake Chelan State Park	Chelan	800 ft	1,090
Lake Chelan Yacht Club	Chelan	40	1,088
Lake Shore Marina	Chelan	40	1,090
Lakeshore Marina & Park	Chelan	40	1,091/1,095
Peterson's Resort	Chelan	12	1,095
Lake Chelan Boat Club	Manson	10	1,095
Manson Bay	Manson	20	1,095
Wapato Point Resort	Manson	60	1,095
Cove Marina	Southside	60	1,085
Kelly's Resort	Southside	8	1,095
Watson's Harverenes Resort	Southside	25	1,090/1,095
Stehekin Landing	Stehekin	36	?
Weaver Point	Stehekin	480 ft	?

Source: University of Washington SeaGrant Program, Mr. Bob Harris

Table 3 – Lake Chelan Uplake Marina Facilities

	Design	Year	Estimated	Boating	# of Boats floating at lake level of		
Dock Location	**Style**	**Built**	**Life Span**	**Capacity**	**1090'**	**1094'**	**1096'**
U.S. Forest Service Docks							
Fields Point Landing	Floating	1979	15 years	3 boats	0	0	3
Mitchell Creek Campground (CG)	Floating	1991	15 years	17 boats	4	7	17
Deer Point CG	Floating	1988	15 years	8 boats	4	6	8
Safety Harbor CG	Floating	1991	15 years	6 boats	3	6	6
Big Creek CG	Fixed	1993	25 years	4 boats	0	0	4
Corral Creek CG	Floating	1991	15 years	6 boats	2	4	6
Graham Harbor CG	Floating	1991	15 years	10 boats	6	8	10
Graham Harbor Creek CG	Fixed	1993	25 years	6 boats	0	0	6
Prince Creek CG	Floating	1962	15 years				
Prince Creek Administrative Dock	Floating	1996	15 years	1 boat	1	1	1
Domke Falls CG	Floating	1991	15 years	6 boats	4	6	6
Cascade Creek CG	Fixed	1961	25 years	1 boat	0	0	1
Refrigerator Harbor CG	Floating	1996	15 years	8 boats	6	6	8
Lucerne Community Dock	Floating	1970	15 years	2 boats	2	2	2
Lucerne Administrative Dock	Fixed	1970	25 years		0	0	0
Lucerne CG	Floating	1962	15 years	11 boats	0	0	0
Moore Point CG	Fixed	1950	25 years	3 boats	0	0	3
Cascade	Fixed		15 years		0	0	0
subtotal				92	32	46	81
National Park Service Docks							
Flick Creek	Floating	1995	15 years	1			1
Manly Wham	Fixed	1985	15 years	1			1
Weaver Point	Floating	1976	20 years	12			12
Purple Point	Floating	1976	20 years	10		10	10
Stehekin Marina	Floating	1975	20 years	26	26	26	26
subtotal				50	26	36	50
Combined Total				142	58	82	131

Source: U.S. Forest Service, National Park Service

3.1.5 Waterfront Structures & Water Intakes

As shown in Table 4, there are a substantial number of waterfront structures in Lake Chelan, including docks, piers, buoys, bulkheads and water intakes. Although information on the required lake level elevation for optimal use was not collected in the survey, it is likely that these structures are optimized for the 1,098 to 1,100-foot lake elevation, which is considered full pool. The categories presented in Table 4 are not exclusive, that is, many of the parcels surveyed had more than one structure, such as a concrete bulkhead along with a dock and two floats.

Table 4 – Waterfront Structures on Downlake Lake Chelan

Parcels with Structures	Number
Dock	807
Pier	62
Buoy	584
Bulkhead	659
Water Intakes	73

Source: PUD No. 1 of Chelan County

The number in the table also represents the number of parcels with structures, not the number of structures. A total of 807 properties contain docks, on that part of Lake Chelan from Twenty-Five Mile Creek, on the south side of the Lake, downlake to Chelan and uplake to approximately Emerson Acres, which is north and east of Twenty-Five Mile Creek and across the lake. Most of these docks are non-commercial, (e.g., they are used for recreational activities and are associated with a residence or condominium group). Of the total 807 docks, only 11 are commercial. The 796 non-commercial docks are, for the most part, just docks. However, 15 of these docks support cabanas, and three more of the docks contain some other type of structure. (See Table 5)

Table 5 – Types of Docks - Downlake Lake Chelan

Dock Type	Number
Cabana	15
Commercial	11
Non-commercial	778
Other	3
Total	807

Source: PUD No. 1 of Chelan County

As discussed above, many of the parcels on this section of the lake have more than one waterfront structure. Table 6 shows the number of parcels with docks and/or bulkheads. Most of the non-commercial docks and nearly half of the commercial docks have concrete bulkheads.

Table 6 – Parcels with Docks and/or Bulkheads

	Bulkhead Type						
Dock Type	**Concrete**	**Natural**	**Other**	**Riprap**	**Wood**	**None**	**Total**
Cabana	1	0	0	1	0	13	15
Commercial	5	0	0	5	0	1	11
Non-Commercial	566	7	13	60	14	118	778
Other	0	0	0	1	0	0	1
None	118	0	0	18	7	54	197
Total	690	7	13	85	21	186	1,002

Source: PUD No. 1 of Chelan County

These structures have been designed to take full advantage of the 1,100-foot lake elevation. Only 16% of the parcels with docks do not have a bulkhead, and of all the parcels with bulkheads, only 21% do not have docks.

Many of the parcels also have buoys in the water in addition to or as an alternative to docks. As shown in Table 7, more than half of the parcels on Lake Chelan have buoys in the water. Most of these parcels have only one buoy, but many have two or more.

In addition, as shown in Table 8, all the parcels that have buoys also have docks. Table 8 documents the number of parcels with buoys, docks, and bulkheads on the downlake portion of the lake.

Table 7 – Parcels With Buoys

Buoys	# of Parcels
1	407
2	118
3	23
4 or more	36
Total	584
None	418

Source: PUD No. 1 of Chelan County

Table 8 – Parcels With Buoys, Docks and Bulkheads

	Buoy	No Buoy	No Buoy	
Bulkhead Type	Dock	Dock	No Dock	Total
Concrete	422	268	-	690
Natural	5	2	-	7
Other	9	4	-	13
Riprap	42	42	1	85
Wood	9	12	-	21
None	97	88	1	186
Total	584	416	2	1,002

Source: PUD No. 1 of Chelan County

The most common arrangement is for a parcel to contain all three types of structures. Of the total 1,002 parcels included in the data, 487, or 49%, have this arrangement, while 97 have both docks and buoys but no bulkhead. Most of the rest of the parcels (i.e., 416 parcels) have docks but no buoys, and 328 of these also have bulkheads.

Table 9 identifies the home address of the owners of the parcel, for those parcels which have a dock/pier or buoy. Full-time residents in the Chelan Basin own approximately 29% of the parcels with docks and 32% of the parcels with buoys. The remaining owners are mainly from other parts of Chelan and Douglas County or from western Washington (primarily Central Puget Sound).

Table 9 – Owner's Home Address of Parcels with a Dock, Pier or Buoy

Owner's Home Address	Dock/Pier	Buoy
1 - Out of state	3.9%	2.5%
2 - Local Chelan Basin	29.0%	32.1%
3 – Other Chelan & Douglas County	26.0%	23.1%
4 – Other Eastern Washington	5.2%	4.2%
5 – Western Washington	29.3%	32.9%
No Address	6.7%	5.1%

Source: BST Associates using data from the PUD No. 1 of Chelan County and the Chelan County Tax Assessor

In addition to surveying the number of parcels with docks, bulkheads, and buoys, the PUD survey team counted the number of major water intakes along the downlake shoreline of Lake Chelan. This effort did not include intakes leading to individual residences, but did include intakes for major irrigation pump stations. The majority of the water intakes are clustered along the south shore, a few miles to either side of the intersection of U.S. 97A and SR 971. There are also a substantial number of water intakes along the northern portion of the downlake area, scattered from Chelan to uplake of Manson.

3.1.6 Recreational User Characteristics

This section evaluates the characteristics of recreational users.

3.1.6.1 Recreational Activities

There is a strong correlation between recreation activity and water levels in Lake Chelan. The lake is the central focus for most recreational users of Lake Chelan. In the recently completed **1998/1999 Recreational Use Assessment** prepared by Howe Consulting, Inc and Duke Engineering & Services, Inc. for Chelan PUD, recreational users were asked to identify the activities that they engaged in while visiting the Lake Chelan area. Table 10 summarizes the results, focussing on how much of the activity is undertaken by:

- Motor boating enthusiasts (including those who motor boat as well as those who fish from a motor boat),
- Other water sports enthusiasts (including people who swim, jet-ski, water-ski, canoe/kayak, and windsurf), and,
- Recreationists who do not participate in any water sports.

Respondents who engaged in motor boating accounted for 49% of all recreational activity. For example, 45% of the respondents who indicated that they were swimmers were also boaters.

Other water sports enthusiasts accounted for 42% of all recreational activities.

People who are not active in boating or other water sports only accounted for 9% of the recreational activity. These respondents, who were primarily passing through, camping or working, were active in climbing, hiking and other land-based activities.

Recreational users who are primarily visiting Lake Chelan to participate in water-based activities undertake the majority of most land-based activities. The key point of this summary is that water sports enthusiasts (e.g., approximately half by motor boaters and half by other water sports enthusiasts) undertake most water- and land-based recreational activities in Lake Chelan. As a consequence, adequate access to water facilities is critical.

Table 10 – Activities Engaged in By Recreation Survey Respondents

Activity	Boat/Fish	%	Other Water	%	Non-Water	%	Total
Swimming	271	45.3%	327	54.7%	0	0.0%	598
"Jetskiing"	67	64.4%	37	35.6%	0	0.0%	104
Water skiing	140	97.9%	3	2.1%	0	0.0%	143
Canoeing	14	37.8%	23	62.2%	0	0.0%	37
Windsurfing	3	75.0%	1	25.0%	0	0.0%	4
Camping	187	53.4%	138	39.4%	25	7.1%	350
Picnicking	183	43.8%	197	47.1%	38	9.1%	418
Viewing scenery	250	47.6%	217	41.3%	58	11.0%	525
Walking/Jogging	180	45.2%	179	45.0%	39	9.8%	398
Hiking	81	46.3%	60	34.3%	34	19.4%	175
Backpacking	23	41.8%	21	38.2%	11	20.0%	55
Climbing/	6	54.5%	2	18.2%	3	27.3%	11
Hang gliding/	7	63.6%	3	27.3%	1	9.1%	11
Bicycling (On-road)	65	46.1%	66	46.8%	10	7.1%	141
Bicycling (Off-road)	28	62.2%	17	37.8%	0	0.0%	45
Rollerblading/Skateb	27	55.1%	21	42.9%	1	2.0%	49
Golfing	75	57.7%	51	39.2%	4	3.1%	130
Shopping	160	46.2%	157	45.4%	29	8.4%	346
Using playgrounds	67	43.2%	85	54.8%	3	1.9%	155
Off-road vehicle	15	68.2%	7	31.8%	0	0.0%	22
Watching birds	70	50.7%	54	39.1%	14	10.1%	138
Berry picking/ food	12	60.0%	6	30.0%	2	10.0%	20
Visiting Stehekin	101	58.0%	45	25.9%	28	16.1%	174
Visiting Lucerne	40	54.8%	12	16.4%	21	28.8%	73
Just passing through	3	13.6%	3	13.6%	16	72.7%	22
Some other activity:	38	32.8%	57	49.1%	21	18.1%	116
Visiting	13	40.6%	13	40.6%	6	18.8%	32
Relaxing	28	43.1%	33	50.8%	4	6.2%	65
Partying	7	58.3%	5	41.7%	0	0.0%	12
Vacation	29	42.6%	33	48.5%	6	8.8%	68
Working	1	7.7%	8	61.5%	4	30.8%	13
Total	2,191	49.2%	1,881	42.3%	378	8.5%	4,450

Source: BST Associates using data from the Recreational Use Survey prepared by Howe Consulting for Chelan PUD in the **1998/1999 Recreational Use Assessment**

3.1.6.2 Seasonality of Recreation Activity

There is a substantial variation in usage during the seasons. According to the **1998/1999 Recreation Use Assessment**, the summer months received almost four times more visitors at

recreation sites in Lake Chelan than the fall months. In addition, the fall months received more use than the spring months.

The reasons for the fall in spring activity are likely weather, which can be inclement at times, and lack of access to water facilities due to lake levels.

This is reflected in the selection of recreational activities as documented in the **1998/1999 Recreation Use Assessment**:

- "The most popular activities documented at downlake sites during the peak-season (summer) were swimming/visiting beach, camping, motor boating and boat fishing. During the off-season (fall and spring), the most popular activities at downlake sites were swimming/visiting beach, camping, sightseeing, and using playgrounds."
- "The most popular activities documented at uplake sites during the peak-season were camping, motor boating, and shore fishing. During the off-season, the most popular activities at uplake sites were motor boating, backpacking and camping."

3.1.6.3 Location of Recreation Activity and Demand/Capacity Issues

Most of the recreational activity and related economic activity occurs in the downlake area of Lake Chelan. As the Recreation Assessment states:

- "Estimated recreation use at downlake sites was more than 14 times greater than the estimated recreation use at uplake recreation sites in the study area.."
- "In Lake Chelan, motorized boats made up 80 percent of the watercraft use. Personal watercraft (jetskis) made up 17 percent, and non-motorboats made up 4 percent of the watercraft use."
- "Most of the peak-season motorized watercraft use, was concentrated near Chelan with another hub of activity near Stehekin. Non-motorized watercraft use in the peak-season was mostly between Chelan and Deep Harbor. ***Few watercraft were observed on Lake Chelan during the off-season (spring), with over 95 percent of the watercraft motorized***. Most of the off-season watercraft use was between Wapato Point and Camas Creek and a few watercraft were observed further uplake of Deep Harbor." [Emphasis added by BST Associates]
- "Watercraft use throughout Lake Chelan was generally below recommended boats/surface acre guidelines, except for during one peak-season observation day (July 4, 1998). During this day the watercraft activity between Chelan and Wapato Point was significantly above the recommended boats/surface acre guidelines for this reach of the lake. Watercraft use above Wapato Point was below the recommended capacity guidelines on that day."

The Lake Chelan water area and upland parks are reaching or exceeding capacity at the present time, especially at downlake sites.

3.1.6.4 Relevant Visitor Characteristics

The **1998/1999 Recreation Use Assessment** also summarized the origin of visitors and typical expenditure patterns:

- "In the study area most of the peak-season visitors are from the Seattle metropolitan area (41%) and Chelan and Douglas Counties (29%). Fall season downlake visitors are also mostly from the Seattle metropolitan area (47%) and other Washington states (20%). Spring season downlake visitors are mostly from the Seattle metropolitan area (39%) and from Chelan and Douglas counties (34%), Off-season uplake visitors are mostly from the Seattle metropolitan area (31%) and from Chelan/Douglas counties (35%)."
- "Visitors to recreation sites spent more money in the peak-season than in the off-season. The average peak-season day use visitor spent $39 a day. The average overnight visitor spent $44 a day. Of the overnight visitors, those staying at resorts spent an average of $82 a day, those staying at summer homes/friends spent an average of $41 a day and campers spent an average of $30 a day."

Table 11 – Estimated Peak Season Spending

"Please try to estimate the total amount of money you will spend in the Lake Chelan area on this trip."	Spending per person per day or night
Day Users	$39
Campers	$30
Summer Home/Friends	$41
Hotels/Resorts	$82

Source: 1998/1999 Recreation Use Assessment

3.2 Lake Level Relationships

The following section reviews the existing and proposed lake level operating procedures.

3.2.1 Current and Proposed Lake Levels

The current water budget calls for lake levels to reach 1,086.5 feet by May 1st, 1,097.5 feet in mid-June and stay at full level (1,098 +/- 2 feet) from July 1st through October 1st. (See Table 12).

Based upon a review of lake level data for the years 1930 through 1997 (e.g., this data was provided by Chelan PUD), the current target levels are met between 33% and 78% of the time, depending on the date considered. From the tourist industry's perspective, the critical dates are May 1st through October 1st, and in particular from May 1st through July 1st[7]. During these periods, the goal has been attained between 47% and 61% of the time:

[7] The period between July 1st and October 1st is also obviously important to the Lake Level Committee but the existing standards exceed the proposed goals.

- **May 1st** current goal of 1,086.5 feet by was attained 61% of the time, and if the standard is raised to 1,091, it has only been met 21% of the time historically. It should, however, be recognized that the average lake level is 1,088 on May 1st which is only 3 feet lower than the Lake Level Committee's recommendation.
- **June 1st** proposed goal of 1,094 feet was attained 63% of the time,
- **June 14th** current goal of 1,097.5 feet was attained 55% of the time, and,
- **July 1st** goal (current and proposed) of 1,099.5 was attained 48% of the time. See Figure 3.

Table 12 – Lake Level Committee Recommendations

		% of Years		% of Years	Average
Month/Day	**Current**	**Attained**	**Recommended**	**Attained**	**Elevation ft**
1-Jan	1,089.50	64.2%	1,089.50	64.2%	1,091.0
1-Feb	1,086.60	71.6%	1,086.60	71.6%	1,088.6
1-Mar	1,085.40	58.2%	1,085.00	58.2%	1,086.7
1-Apr	1,085.00	50.7%	1,085.00	50.7%	1,085.7
1-May	1,086.50	61.2%	1,091.00	20.9%	1,087.7
1-Jun	NA		1,094.00	62.7%	1,094.7
14-Jun	1,097.50	55.2%	NA		1,097.5
1-Jul	1,099.50	47.8%	1,099.50	47.8%	1,099.3
1-Aug	1,099.50	88.1%	1,099.00	88.1%	1,099.7
1-Sep	1,099.50	77.6%	1,098.50	77.6%	1,099.0
1-Oct	1,098.00	47.8%	1,097.00	59.7%	1,097.2
1-Nov	1,096.00	32.8%	1,095.00	55.2%	1,095.0
1-Dec	1,092.20	61.2%	1,091.20	74.6%	1,093.2

Source: BST Associates using data from the Lake Level Committee and PUD No. 1 of Chelan County

The Lake Level Committee has been discussing several proposal's with Chelan PUD staff. Proposal number 2, which was advanced in August of 1999, has a goal of reaching:

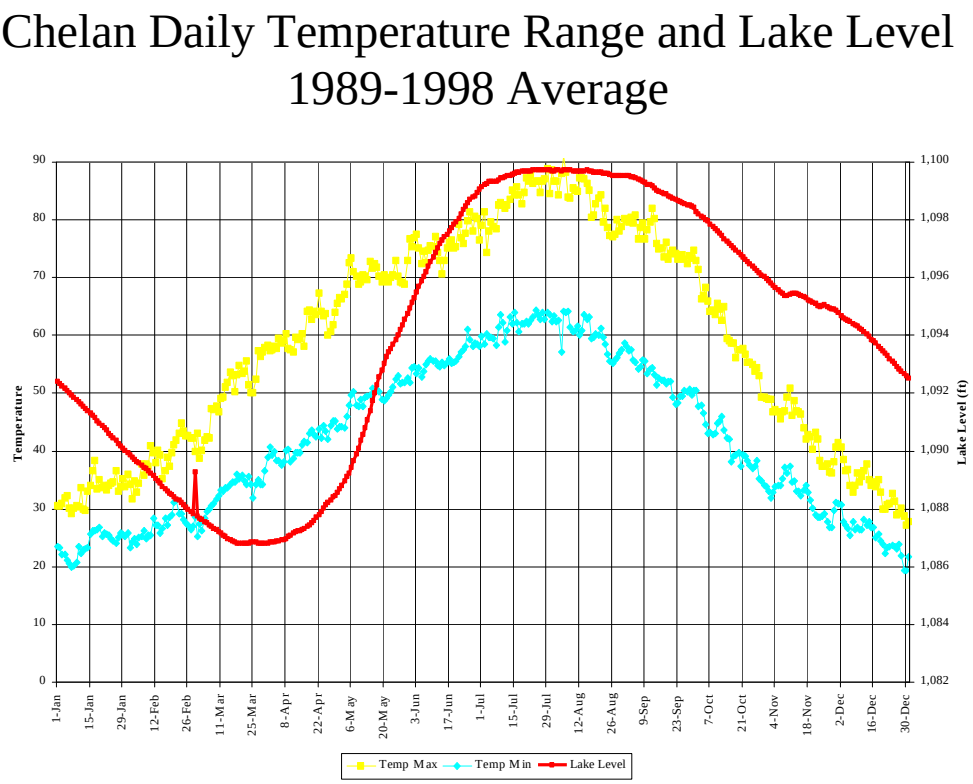
- 1,090.4 feet - 25 percent of the time,
- 1,089.5 feet - 50 percent of the time,
- 1,088.0 feet – 75 percent of the time, and,
- 1,087.5 feet - 90 percent of the time by May 1.

To offset the effects of higher lake levels in the spring, the recommended target elevations would be 0.5 feet lower in August and 1.0 feet lower from September through December. However, the ability to reach certain elevations on May 1st is contingent on the weather (and runoff) conditions of the basin and will vary from year to year.

3.2.2 Lake Level & Weather Relationships

Figure 3 displays the average daily high temperature[8], low temperature, and lake level for the ten-year period of 1989 through 1998. Weather patterns were compared with lake levels in order to better understand the weather conditions that currently prevail throughout the year and during the peak tourism season (i.e., Memorial Day through Labor Day). This comparison does not imply that lake level and temperature are linked or correlated in a statistically relevant way. Instead, the comparison is intended to show what the temperature is during certain lake levels in order to set the stage for a discussion of the potential increase in tourist and recreational activity as a result of increasing lake levels earlier in the Spring.

Figure 3 – Daily Average High and Low Temperatures and Lake Level (1989 – 1998) at Lake Chelan
Source: Lake Chelan Boat Company and Chelan PUD



The obvious pattern is that temperature and lake level follow the same general pattern but, under current operations, the change in the level of the lake lags behind the change in the average high

[8] Temperature information was provided by the Lake Chelan Boat Company. Lake level information was provided by the Chelan PUD.

and low temperature. Most importantly, the Lake Chelan area[9] reaches average highs of 70 degrees in early May and maintains at or above this temperature until the first week of October but lake levels remain below the levels required to utilize marinas and boat ramps until late May to mid-June. As noted above, the lake does not reach elevation 1,095, 75% of the time until the first week of June and does not reach this level 100% of the time until the end of the first week of June.

[9] Ambient air temperatures were recorded at the Lake Chelan Boat Company. Temperatures are colder in uplake areas.

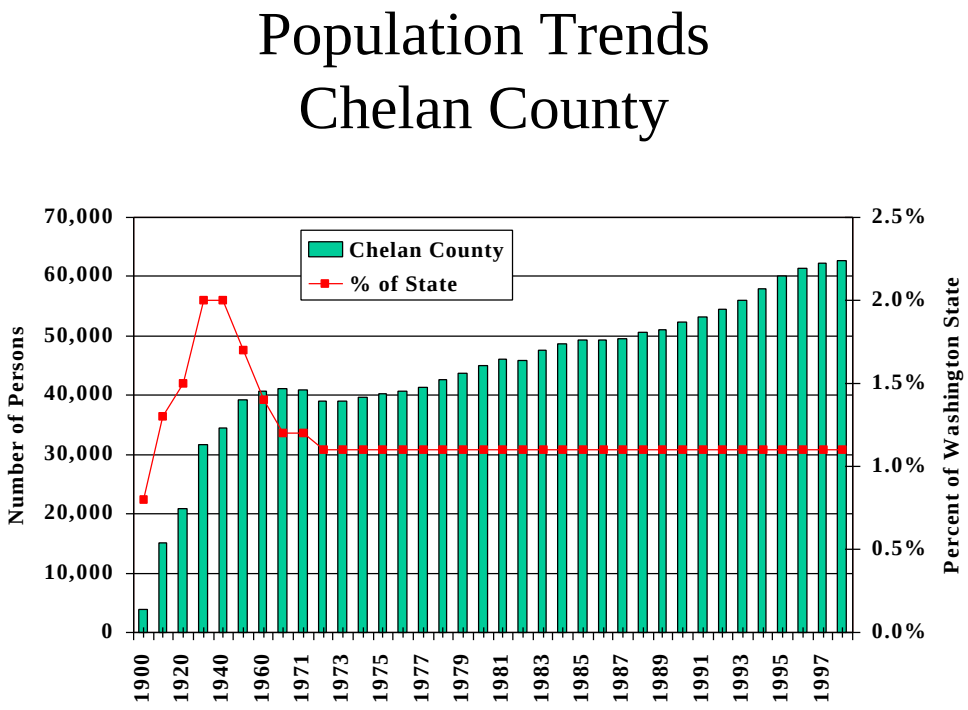
4 Trends & Forecasts

The following section provides a brief assessment of the population, income and employment trends in Chelan County and the Lake Chelan area. It also provides a current estimate of the size and characteristics of the Lake Chelan Valley economy.

4.1 Population Trends

Chelan County's population grew rapidly at the beginning of the century, especially from 1900 to 1950. As a result of more rapid growth than in the state as a whole, Chelan County's population reached a peak percentage of 2% of the total state population. See Figure 4.

Figure 4 – Population Trends in Chelan County
Source: Washington State Office of Financial Management



However, the population in the County grew very slowly in the 1960s and actually declined in the early 1970s. Chelan County has accounted for 1.1% of the state's population consistently since the early 1970s. It is also projected to continue to grow at this rate in the future.

In the 1980s, the population in Chelan County grew slightly slower than the state (e.g., 1.4% per year in Chelan County and 1.5% in Washington State). In the 1990s, the population in Chelan

County grew more rapidly than the state as a whole, outpacing statewide growth by 0.3% per year. (See Table 13).

Table 13 – Population Growth Rates by Decade

Decade	Chelan County	Washington State
1900s	14.4%	8.2%
1910s	3.3%	1.7%
1920s	4.2%	1.4%
1930s	0.8%	1.1%
1940s	1.3%	3.2%
1950s	0.4%	1.8%
1960s	0.1%	1.8%
1970s	0.7%	1.7%
1980s	1.4%	1.5%
1990s	2.3%	2.0%

Source: Washington State Office of Financial Management

The unincorporated areas of the County have grown slightly more rapidly than the incorporated areas as shown in Table 14. In 1990, the unincorporated areas comprised less than 44% of the countywide population base. In 1998, the unincorporated areas accounted for 45% of the total.

Table 14 – Recent Population Trends in Chelan County

Year	Chelan	Unincorporated	% of County	Incorporated	% of County
1990	52,250	22,760	43.6%	29,490	56.4%
1991	53,200	23,398	44.0%	29,802	56.0%
1992	54,600	24,058	44.1%	30,542	55.9%
1993	56,000	24,975	44.6%	31,025	55.4%
1994	58,000	26,115	45.0%	31,885	55.0%
1995	60,000	27,300	45.5%	32,700	54.5%
1996	61,300	27,865	45.5%	33,435	54.5%
1997	62,200	27,939	44.9%	34,261	55.1%
1998	62,600	28,140	45.0%	34,460	55.0%
CAGR* 90-98	2.3%	2.7%		2.0%	

Source: Washington State Office of Financial Management
* CAGR = Compound Annual Growth Rate

The incorporated areas of the County have grown unevenly, possibly due to annexations. Entiat has experienced the fastest rate of growth (8.5% per year) followed distantly by Leavenworth at 3.6% per year. Chelan and Wenatchee have grown at 1.5% and 1.9% per year, respectively, which is substantially less than the 2.3% overall county growth rate. Cashmere has grown the least rapidly – at 0.7% per year. (See Table 15)

Table 15 – Recent Population Trends in Chelan County Incorporated Areas

Year	Cashmere	Chelan	Entiat	Leavenworth	Wenatchee
1990	2,544	2,976	449	1,692	21,829
1991	2,550	3,027	450	1,705	22,070
1992	2,560	3,077	455	1,750	22,700
1993	2,585	3,150	465	1,825	23,000
1994	2,660	3,200	545	2,020	23,460
1995	2,670	3,230	555	2,065	24,180
1996	2,715	3,255	675	2,100	24,690
1997	2,720	3,350	801	2,230	25,160
1998	2,690	3,365	865	2,250	25,290
CAGR 90-98	0.7%	1.5%	8.5%	3.6%	1.9%

Source: Washington State Office of Financial Management

4.2 Demographics

The average age in Chelan County is increasing (e.g., especially in the 40 to 60 and over 75 year old age ranges. This phenomenon is consistent throughout Washington State and the United States. However, the Chelan County population base is slightly older than that in the state as a whole, indicating an increased share of retirees and limited employment opportunities for young people.

In 1970, the median age was 32.5 years in Chelan County and 27.4 years in Washington State, a difference of more than 5 years. The median age increased to 35.0 years of age in the County in 1990, but the state's population aged more rapidly, which reduced the gap to slightly less than 2 years. This range is expected to continue to narrow in the future. By 2020, Woods & Poole, a nationally recognized demographic analysis firm, projects the median age will be slightly less than 39 in Chelan County and approximately 37.5 in the state as a whole.

4.3 Population Forecasts

The Washington State Office of Financial Management (OFM) produces long-term population forecasts for all counties, with a range from low to medium to high. The most recent forecast (prepared in 1995) has been used to coordinate Growth Management Act (GMA) planning at the local level.

Chelan County is projected to grow to between 77,677 and 94,919 persons by 2020 with a medium projection of 86,213. As shown in Figure 5, this amounts to an average annual growth rate of: Low = 0.9%, Medium = 1.3%, and, High = 1.7%.

Chelan County and the City of Chelan have used the high growth forecasts for GMA planning. According to Chelan County projections, the County will grow from 62,200 persons in 1997 to 90,444 by 2017, a gain of 28,244 persons.

Approximately one-third of the growth is expected in the rural areas and two-thirds in the urban areas. The Chelan-Manson area is expected to grow slightly faster than in the county as a whole

(e.g., 2.1% in Chelan-Manson and 1.9% in the County). Stehekin is expected to grow fairly rapidly (3% per year) albeit from a very small base. See Table 16.

Figure 5 – Chelan County Population Forecasts
Source: Office of Financial Management

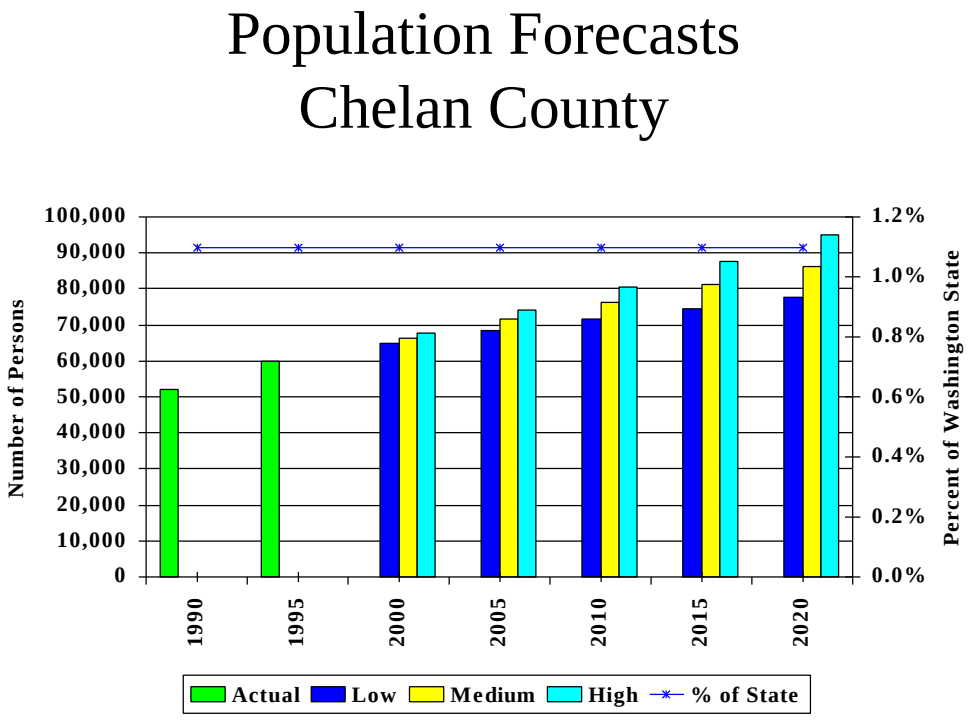


Table 16 – Chelan County Population Forecast by Area

				Average		
			Population	Annual	Projected Growth	
Area	1997	2017	Change	Growth	Rural	UGAs
Chelan County	62,200	90,444	28,244	1.9%	9,223	19,021
Plain Lake Wenatchee	1,375	2,522	1,147	3.1%	1,147	-
Upper Wenatchee R.V.	7,649	13,092	5,443	2.7%	1,713	3,730
Low Wenatchee R.V.	10,541	15,402	4,861	1.9%	1,458	3,403
Wenatchee Urban Area	28,002	35,663	7,661	1.2%	766	6,895
Chelan-Manson	8,851	13,403	4,552	2.1%	1,366	3,186
Entiat	1,681	2,285	604	1.5%	442	162
Malaga-Stemlit-Squilchuck	4,023	7,940	3,917	3.5%	2,252	1,665
Stehekin	96	175	79	3.0%	79	-

Source: City of Chelan Comprehensive Land Use Plan, 1998, Appendix

4.4 Personal Income by Source

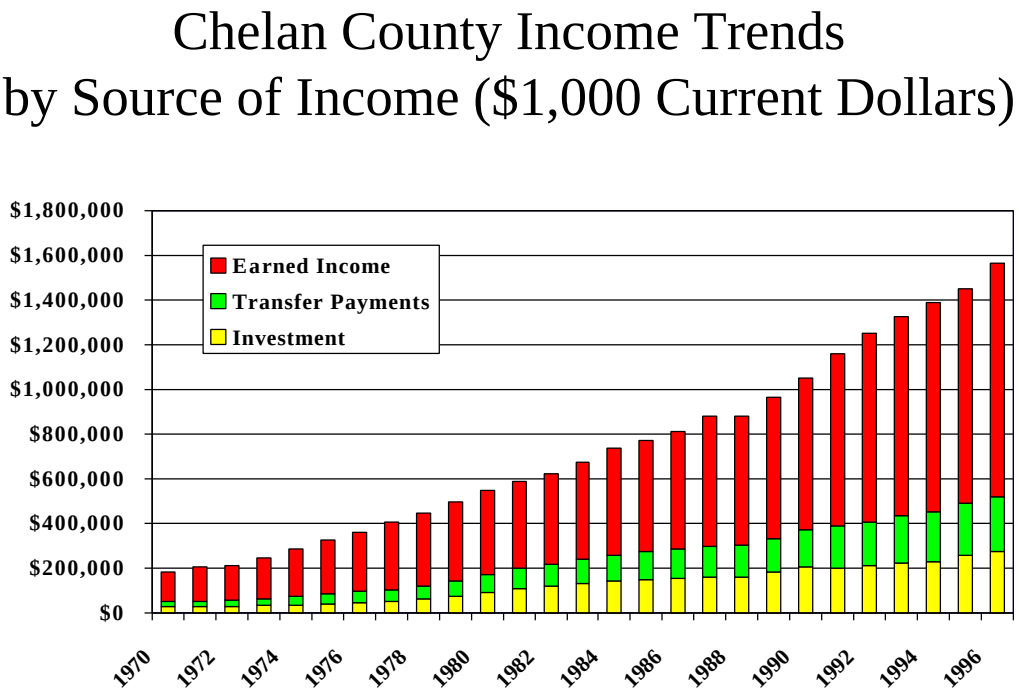
Personal income is composed of investment income, transfer payments, and earned income. In Chelan County (and the state as a whole), earned income is declining as a source of personal income. Earned income accounted for 74% of personal income in 1970 and now accounts for approximately 66%. See Figure 6.

There has been an increase in both investment income and transfer payments as a percentage of total personal income in Chelan County (and in the state as a whole).

4.4.1 Characteristics of Earned Income

Earned income is comprised of wage & salary income, other labor (contract work) and sole proprietor's income. In Chelan County, wage & salary income has declined from 83% in 1969 to 75% in 1996 (the last year of available data). During this time period, other labor increased from 4% to 7.5% of earned income and proprietor's income increased from 13% to 18%.

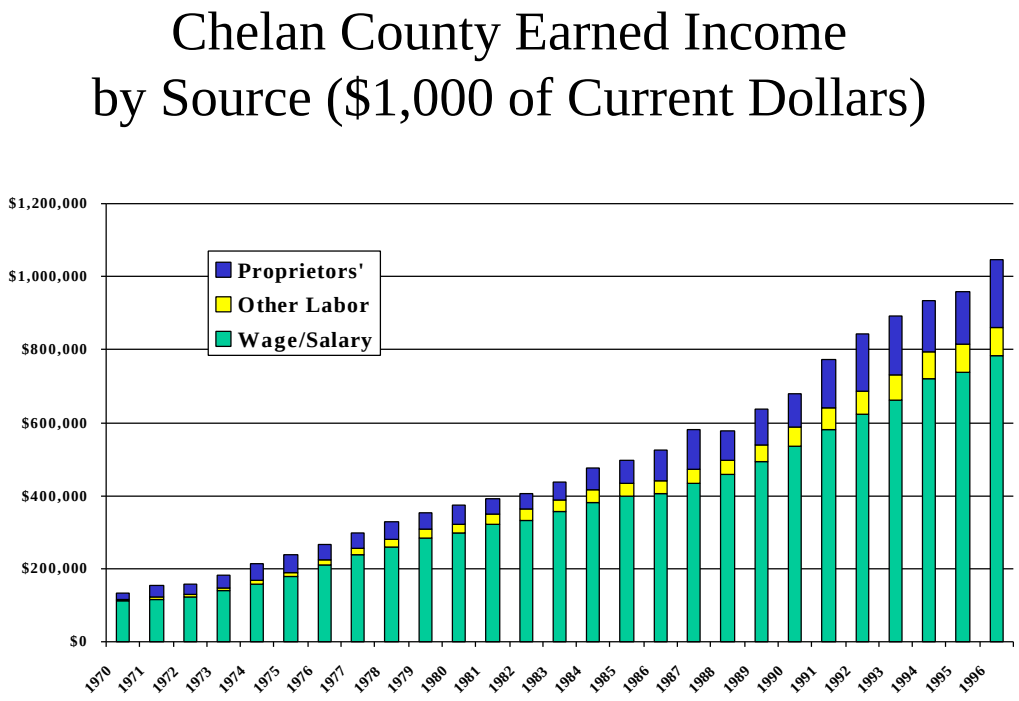
Figure 6 – Chelan County Income by Source
Source: OFM, Bureau of Economic Accounts



In Washington State, proprietor's income has been declining as a percent of earned income – from 15% in 1973 to approximately 12.5% in 1996. This suggests that there are significantly more sole proprietors in Chelan County than in the state as a whole. In the state and Chelan

County, other labor represents a similar share of total earned income, accounting for 8% of earned income. See Figure 7.

Figure 7 – Chelan County Earned Income Trends
Source: US Bureau of Economic Analysis

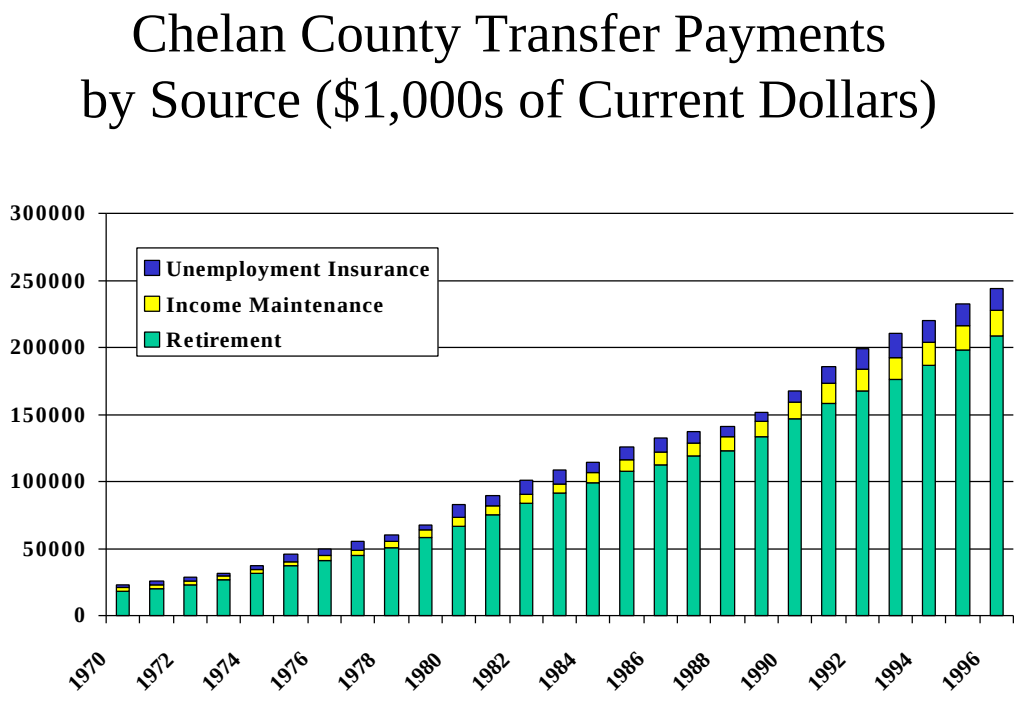


4.4.2 Characteristics of Transfer Payments

Transfer payments consist of retirement (or pension plans), unemployment insurance and income maintenance programs. In Chelan County, retirement income is the primary source of transfer payments, increasing from 79% of all transfer payments in 1970 to 86% in 1996. During this period, statewide income from transfer payments increased at a similar rate (from 77% to 88%). This is obviously the result of the graying of America as well as the desirability of Chelan County as a retirement location. See Figure 8.

There have been corresponding decreases in unemployment insurance and income maintenance plans (e.g., both sources decreased from approximately 11% to 7%, during this time period). However, the reliance on unemployment insurance is approximately 50% greater than in the state as a whole. This is likely due to a greater reliance on tourism and agriculture in Chelan County, which both exhibit more seasonality than other employment.

Figure 8 – Chelan County Transfer Payments
Source: US Bureau of Economic Analysis



4.4.3 Comparison of Average Annual Wages

The average annual wage in Chelan and Douglas counties has not kept pace with that in the state as a whole. The more populous areas, especially the Central Puget Sound area, dominate state wages.

As shown in Figure 9, the average wage in Chelan County has declined rather steadily from 85% of the state in 1971 to 71% in 1996. In Douglas County, the decline has been even greater – from 92% to 62% in the same time period.

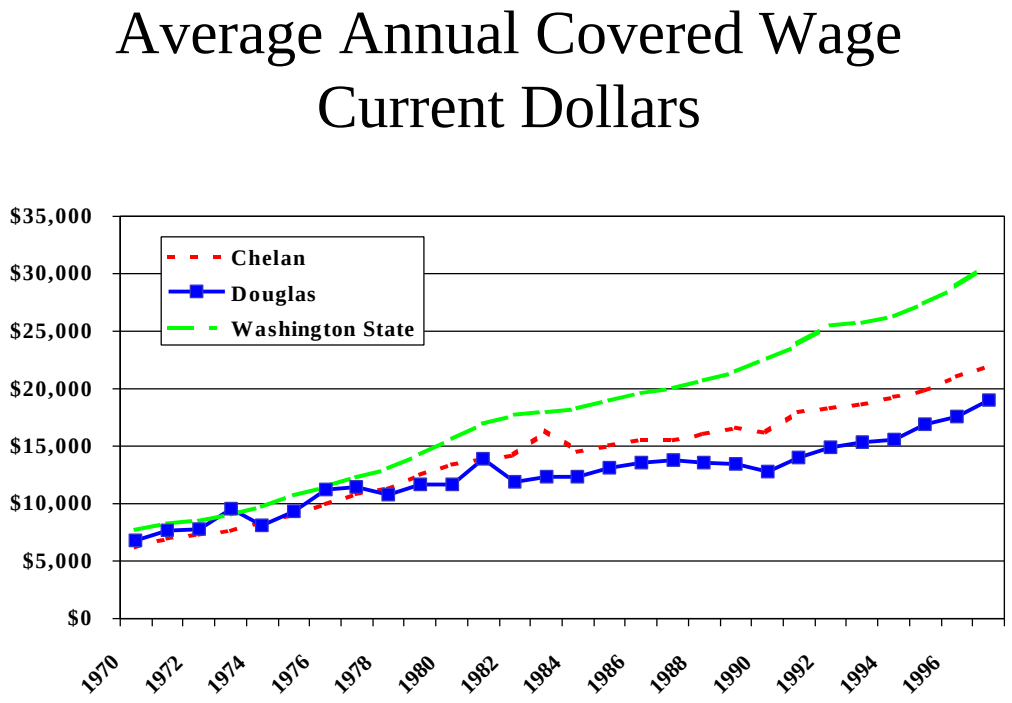
4.4.4 Comparison of Median Household Income - 1989

The 1990 Census provides details on the median household income in Chelan County by census division. The smaller the geographical level that is considered, the more differentiation between incomes in Chelan County. As shown in Table 17, the highest household incomes were found in the West Wenatchee area.

Chelan and Manson average household incomes were approximately $30,300 and $34,100 respectively in 1989. In Stehekin, the average was $42,500. In the remainder of the Chelan Division (outside the City of Chelan), average household income fell slightly below $29,000.

The median income in the Lake Chelan area was approximately $31,200 in 1989, compared with $31,400 in the county as a whole.

Figure 9 – Comparison of Average Wages
Source: US Bureau of Economic Analysis



The overall distribution of incomes in the Lake Chelan area is similar to that in Chelan County as a whole. There are slightly fewer households with incomes less than $5,000 and between $25,000 and $99,000 and correspondingly more households between $15,000 and $25,000 and over $100,000.

There were, however, relatively more people with incomes below the poverty level in the Lake Chelan area than in the County (e.g., county -15.3%, and Lake Chelan area - 17.8%).

4.4.5 Comparison of Average Household Income – 1998 estimates

The average household income in Chelan County is currently estimated to be approximately $39,000. This represents an increase of 2.5% per year (which kept pace with the rate of inflation). However, there is not much differentiation between average household incomes at the

ZIP Code level (as compared with the census divisions presented above). Household incomes range from a low of slightly less than $34,000 in Entiat and Mansfield to a high of $44,500 in Malaga, located west of Wenatchee. Chelan and Manson households averaged an estimated $37,900 and $42,250, respectively, according to CACI, Inc.

Table 17 – Chelan County Median Household Income

Area	Households	Average HH Income	Total Income
West Wenatchee CDP	838	$44,899	$37,625,099
Remainder of Wenatchee CDP	161	$44,506	$7,165,424
Sunnyslope CDP	695	$44,200	$30,719,177
Stehekin Division	22	$42,500	$ 934,989
South Wenatchee CDP	21	$40,595	$ 852,490
Remainder of Malaga Division	886	$35,912	$31,818,076
Manson Division	872	$34,058	$29,698,592
Remainder of Cashmere Division	2,349	$33,319	$78,265,892
Remainder of Leavenworth Division	1,096	$33,164	$36,347,489
Chelan City	1,214	$30,329	$36,819,945
Wenatchee City	9,029	$29,386	$265,324,384
Remainder of Chelan Division	724	$28,993	$20,991,164
Leavenworth City	740	$27,300	$20,202,165
Remainder of Entiat Division	378	$26,693	$10,089,812
Cashmere City	1,033	$26,587	$27,464,031
Entiat City	187	$25,962	$4,854,917
South Wenatchee CDP	393	$23,536	$9,249,817
Lake Chelan Area	2,832	$31,230	$88,444,689
County	20,638	$31,419	$648,423,458

Source: BST Associates using data from the 1990 Census, using 1989 data

Table 18 – Estimated Household Income by ZIP Code Area in Chelan County

ZIP Code	Name of Area	# of Households	Total Income	Average Income
98815	Cashmere	3,214	$122,784,636	$38,203
98816	Chelan	2,227	$84,358,100	$37,880
98822	Entiat	850	$28,894,944	$33,994
98826	Leavenworth	3,036	$116,741,849	$38,453
98828	Malaga	649	$28,882,356	$44,503
98831	Manson	1,044	$44,107,860	$42,249
98847	Peshastin	408	$16,582,668	$40,644
98801	Wenatchee	12,619	$502,932,716	$39,855
	Total	24,047	$945,285,129	$39,310

Source: BST Associates, using data from CACI, Inc., data is estimated for 1998.

4.5 Employment Trends

4.5.1 Overall County Non-Agricultural Employment Trends

In Chelan County, the most noteworthy employment trends are:

- Trade, which consists of retail and wholesale trade, is the largest employment sector. It has consistently accounted for 30% to 33% of employment.
- Services (including Finance, Insurance and Real Estate or "FIRE") is the second largest sector. It has also shown the fastest rate of growth. In 1970, services accounted for 19.5% of non-Ag employment. It now represents 27.8%.
- Government employment, which has consistently remained between 21% and 23% of overall employment, is currently the third largest sector in the County,
- Manufacturing, the fourth largest sector, has fallen from nearly 17% of total non-Ag employment in 1970 to 8.4% in 1997,
- Construction and mining have been rather volatile, accounting for between 4% and 10% of employment.

4.5.2 County Unemployment Trends

The unemployment rate in Chelan County has averaged approximately 3% to 4% more per year than in Washington State. It reached a peak of 17.3% in 1982 and currently stands at 7.9% (in 1997).

Rural counties typically exhibit more seasonal activity than do more populated areas, which tends to increase the unemployment rate. As shown in table 19, the variance between the highest and lowest unemployment rates by month is less than 1 percent in the state but ranges from 6% to 8.2% in Chelan County. This underscores the need for expanding the seasons and creating full-time year around jobs, where feasible.

Table 19 – Unemployment Rates in Chelan County and Washington State (percent)

UE Rate	Chelan 97	Chelan 90	State 97	State 90
Annual Average	7.9%	8.5%	4.8%	4.9%
Minimum	4.8	5.0	4.4	4.7
Maximum	13.0	11.0	5.3	5.3
Range from Min to Max	8.2	6.0	0.9	0.6

Source: BST Associates using data from Washington State Employment Security

4.5.3 Recent County Trends by ZIP Code

The Washington State Department of Employment Security also provides estimates of covered employment at the ZIP Code level. As shown in Table 20, there are approximately 3,000 to 3,100 monthly employees in the Chelan area, with an average wage of $14,700 in 1996 (the

latest available data). There has been a slight decline in employment for each year. In Manson, there were approximately 1,150 employees, with an average wage of $10,100 in 1996. In Stehekin, there were 11 covered employees with an average wage of $12,200 in 1995 (1996 was not disclosed). The Lake Chelan area (Chelan, Manson and Stehekin) accounted for approximately 17% of the firms in Chelan County, 15% of the employment (average firm size is smaller than in the County as a whole) and approximately 10% of the wages in the County. The average wage was approximately 71% of that in the County overall.

Table 20 – Lake Chelan Area Covered Employment Statistics by ZIP Code Area

Year	Total Firms	Monthly Employed	Total Wages Paid	Average Wage
1994	379	3,183	$42,138,599	$13,239
1995	353	3,080	$42,898,327	$13,928
1996	385	3,010	$44,062,118	$14,639
Manson				
1994	189	1,086	$10,328,201	$9,510
1995	180	1,061	$10,296,724	$9,705
1996	210	1,147	$11,565,679	$10,083
Stehekin				
1994	5	11	$114,705	$10,428
1995	5	11	$134,292	$12,208
1996	Not Reported			
Lake Chelan Area				
Year	**Total Firms**	**Monthly Employed**	**Total Wages Paid**	**Average Wage**
1994	573	4,280	$52,581,505	$12,285
1995	538	4,152	$53,329,343	$12,844
1996	595	4,157	$55,627,797	$13,382
Percent of Chelan County				
1994	18.2%	15.0%	10.8%	71.5%
1995	18.1%	14.6%	10.5%	72.3%
1996	17.3%	14.7%	10.5%	71.4%

Source: BST Associates using data from Washington State Employment Security Department

Data is available at an aggregated sectoral level in 1996 from Employment Security. Approximately 44% of the covered employment in Chelan is related to agriculture, forestry and fishing, followed by retail trade (19.3%), other (not disclosed by category – at 15.4%), services/FIRE (combined represent 17.4%). The average annual wage is highest in FIRE and lowest in agriculture, forestry and fishing. Approximately 69% of the covered employment in Manson is related to agriculture, forestry and fishing, followed by retail trade (9.2%), other (not disclosed by category – at 15.0%), and services (4.4%). The average annual wage is highest in construction and lowest in agriculture, forestry and fishing. (See Table 21)

Table 21 – Covered Employment Statistics, Lake Chelan Area in 1996

Area/Sector	Total Number of Firms	% of Total	Average Monthly Employed	% of Total	Average Annual Wage	Total Wages Paid	% of Total
Chelan (98816)							
Total	385	100.0%	3,010	100.0%	$ 14,639	$ 44,062,118	100.0%
Agr, Forest & Fishing	129	33.5%	1,312	43.6%	$ 12,251	$ 16,072,905	36.5%
Construction	39	10.1%	126	4.2%	$ 20,651	$2,602,044	5.9%
Retail Trade	70	18.2%	582	19.3%	$ 12,509	$7,279,953	16.5%
Finance-Ins-Real Est	28	7.3%	200	6.6%	$ 22,189	$4,437,872	10.1%
Services	92	23.9%	325	10.8%	$ 12,524	$4,070,171	9.2%
Other	27	7.0%	465	15.4%	$20,643	$9,599,173	21.8%
Manson (98831)							
Total	210	100.0%	1,147	100.0%	$ 10,083	$ 11,565,679	100.0%
Agr, Forest & Fishing	142	67.6%	796	69.4%	$8,204	$6,530,073	56.5%
Construction	22	10.5%	23	2.0%	$ 19,202	$ 441,640	3.8%
Retail Trade	16	7.6%	105	9.2%	$ 11,216	$1,177,632	10.2%
Services	20	9.5%	51	4.4%	$ 12,077	$ 615,933	5.3%
Other	10	4.8%	172	15.0%	$16,281	$2,800,401	24.2%

Source: BST Associates using data from Washington State Employment Security Department

4.5.4 Current County Employment and Revenue Estimates

The Lake Chelan area[10] economy had estimated gross sales of approximately $274 million in 1998 with 5,151 employees and a wage & salary income of nearly $75 million. The two leading sectors of the economy directly contributed the following shares of the total:

- Agriculture directly accounted for approximately $70 million or 26% of the total area sales in 1998/99, 41% of employment (2,108 jobs) and 34% of wage & salary income ($25.7 million).
- Direct tourist expenditures accounted for approximately nearly $50 million or nearly 18% of total sales, 19% of employment (1,000 jobs) and 18% of wage & salary income ($13.2 million).

Other sales include indirect and induced multiplier effects (that is purchases of goods and supplies by employees as well as purchases by the firms) from the two main industries as well as sales to other citizens not directly employed by firms in either industry (e.g., including senior citizens). Table 22 further illustrates the relative importance of the tourism and agricultural sectors. Taking into account the direct, induced and indirect effects of these two sectors, they account for as much as 70% of total revenue, 91% of employment and 76% of payroll.

[10] Defined to include Chelan, Manson, Stehekin and Chelan Falls.

Table 22 – Importance of Tourism and Agriculture

	Agriculture/Tourism		All	
Category	**Direct Impact**	**Total Impact[11]**	**Sectors**	**Percent**
Revenue	$ 120,047	$190,440	$273,488	69.6%
Jobs	3,558	5,647	6,213	90.9%
Payroll	$43,998	$72,016	$ 94,259	76.4%

Source: BST Associates

The agricultural sector is approximately 50% larger than the tourist industry at the present time in terms of sales (Table23) but nearly twice as large in terms of employment (Table 24) and payroll (Table 25). If tourism grows at 2% per year in real terms (approximately 5% per year unadjusted for inflation with an average inflation rate of 3% per year) and the agricultural sector remains at the same level, it would take slightly less than 20 years for tourism to overtake agriculture in sales revenue.

Table 23 – Lake Chelan Area Revenues by Type of Firm (in $1,000 of $1998)

Sector	Total	Agriculture	Tourism	Other
Agriculture	$32,768	$ 32,768	$ -	$ -
Construction	$17,282	$ -	$ -	$17,282
Manufacturing	$7,838	$ -	$ -	$7,838
Transp, Commun, Utilities	$13,142	$ -	$ -	$13,142
Wholesale Trade	$65,666	$ 37,432	$ -	$28,234
Retail Trade	$56,335	$ -	$ 16,062	$40,274
Building Materials & Garden Supplies	$7,948	$ -	$2,003	$5,945
General Merchandise Stores	$ 567	$ -	$ 142	$425
Food Stores	$20,688	$ -	$5,675	$15,014
Automotive Dealers & Service Stations	$7,602	$ -	$1,724	$5,879
Apparel And Accessory Stores	$2,550	$ -	$1,244	$1,306
Furniture And Homefurnishings Stores	$3,096	$ -	$1,067	$2,030
Eating And Drinking Places	$7,921	$ -	$3,699	$4,222
Miscellaneous Retail	$5,962	$ -	$ 508	$5,454
Finance, Insurance, Real Estate	$22,764	$ -	$ -	$22,764
Services	$57,693	$ -	$ 33,785	$23,908
Hotels	$20,816	$ -	$ 19,927	$889
Other	$36,877	$ -	$ 13,858	$23,019
Public	NM	NM	NM	NM
Other	$8,402	$ -	$ -	$8,402
Total	$ 273,488	$ 70,200	$ 49,847	$153,442
Percent		25.7%	18.2%	56.1%

Source: BST Associates using data from CACI and Washington State Department of Revenue

However, while agricultural production in the Chelan Valley is not expected to increase, the value of production is expected to improve from the current low levels. Forecasts by WSU Impact Center project an increase of the average price of apples to $13.80 per box in the year 2005 (in real 1996$). This would have the effect of increasing the value of agricultural production in the County to approximately $89 million (more than 25% above current levels).

[11] The total impact includes direct, indirect and induced effects using IMPLAN multipliers.

From an economic development perspective, it is imperative that both main sectors of the Lake Chelan area are strengthened and that where viable, other sectors also be further promoted and developed.

Table 24 – Lake Chelan Area Employment by Type of Firm (in 1998/99)

Sector	Total	Agriculture	Tourism	Other
Agriculture	1,658	1,658	-	-
Construction	133	-	-	133
Manufacturing	72	-	-	72
Transp, Communications, Utilities	101	-	-	101
Wholesale Trade	790	450	-	340
Retail Trade	705	-	239	466
Building Materials & Garden Supplies	56	-	14	42
General Merchandise Stores	1	-	0	1
Food Stores	193	-	53	140
Automotive Dealers & Service Stations	46	-	10	36
Apparel And Accessory Stores	25	-	12	13
Furniture And Homefurnishings Stores	22	-	8	14
Eating And Drinking Places	289	-	135	154
Miscellaneous Retail	73	-	6	67
Finance, Insurance, Real Estate	217	-	-	217
Services	1,403	-	761	642
Hotels	402	-	385	17
Other	1,001	-	376	625
Public	72			72
Other	591			591
Total	5,151	2,108	1,000	2,043
percent		40.9%	19.4%	39.7%

Source: BST Associates using data from CACI and Washington State Department of Revenue

Table 25 – Lake Chelan Area Wage & Salary Income by Type of Firm (in $1,000s of $1998)

Sector	Total	Agriculture	Tourism	Other
Agriculture	$18,618	$ 18,618	$ -	$ -
Construction	$2,717	$ -	$ -	$2,717
Manufacturing	$1,402	$ -	$ -	$1,402
Transp, Communications, Utilities	$1,656	$ -	$ -	$1,656
Wholesale Trade	$12,429	$7,085	$ -	$5,344
Retail Trade	$8,679	$ -	$2,939	$5,741
Building Materials & Garden Supplies	$1,131	$ -	$ 285	$846
General Merchandise Stores	$ 12	$ -	$ 3	$9
Food Stores	$2,806	$ -	$ 770	$2,036
Automotive Dealers & Service Stations	$ 938	$ -	$ 213	$725
Apparel And Accessory Stores	$ 216	$ -	$ 106	$111
Furniture And Homefurnishings Stores	$ 319	$ -	$ 110	$209
Eating And Drinking Places	$2,244	$ -	$1,048	$1,196
Miscellaneous Retail	$ 793	$ -	$ 68	$725
Finance, Insurance, Real Estate	$4,815	$ -	$ -	$4,815
Services	$17,486	$ -	$9,484	$8,001
Hotels	$3,467	$ -	$3,318	$148
Other	$19,485	$ -	$7,322	$12,163
Public	$1,800	$ -	$ -	$1,800
Other	$14,360	$ -	$ -	$14,360
Total	$74,846	$ 25,703	$ 13,242	$35,902
percent		34.3%	17.7%	48.0%

Source: BST Associates using data from CACI and Washington State Department of Revenue

5 Chelan Business Survey Results

A survey was conducted with business owners to gain additional insights into the characteristics and performance of the Lake Chelan economy as well as to better understand the business owners perspective on the impact of lake levels on the local economy.

5.1 Survey Response Rate

Surveys were mailed to all businesses, which are currently members of the Lake Chelan Valley Chamber of Commerce[12]. The response rate was 18.0% (e.g., 69 returns from 384 total firms, which is considered very good for a mailed survey. Mail surveys typically achieve 5% to 10% response rate, according to **The Survey Research Handbook**. The response rate was particularly good for lodging, retail, service and recreation firms. (See Table 26)

Table 26 – Survey Responses

Business Type	Number	Percent
Services		
FIRE	11	15.9%
Other	6	8.7%
Lodging		
Hotel/Motel/B&B	8	11.6%
Other	14	20.3%
Other	9	13.0%
Recreation	10	14.5%
Retail	11	15.9%
Total	69	100.0%

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.2 Business Characteristics

5.2.1 Sources of Revenue

Firms in a particular sector do not earn all of their revenue from one type of business. For example, hotels/motel/B&B operators earn approximately 88% of their revenue from lodging, 8% from restaurant sales, 4% from retail sales and the remainder from other miscellaneous services. Revenue received by lodging providers that rent cabins, condos and houses comes primarily from the lodging itself (93%) but some of these firms own other businesses as well (e.g., orchards or other businesses) which provide additional revenues. Firms engaged in finance, insurance and real estate (FIRE) earn all of their revenue by providing a service. Other service providers (e.g., includes personal services such as hair salons and business services such as accountants) earn most of their revenue by providing the service but some also rent cabins or other lodging facilities. (See Table 27)

[12] We are very appreciative of assistance by the director and staff of the Lake Chelan Valley Chamber of Commerce in helping with providing the mailing list and contacting members to encourage their open participation. There are currently 384 Chamber members.

Table 27 – Percentage of Revenue by Type for each Type of Business

	Sources of Revenue (%)				
Business Type	**Retail**	**Restaurant**	**Lodging**	**Service**	**Other**
Services					
FIRE	0.0	0.0	0.0	100.0	0.0
Other	0.0	0.0	8.3	91.7	0.0
Lodging					
Hotel/Motel/B&B	2.8	8.3	87.6	1.4	0.0
Other	0.0	0.0	92.9	0.0	7.1
Other	0.0	0.0	0.0	0.0	100.0
Recreation	19.0	1.5	2.0	60.8	16.7
Retail	74.5	14.1	0.5	9.5	1.4
All Firms	15.0	3.4	30.1	34.4	17.1

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

The retailers responding to this survey earn nearly 75% of their revenue from retail sales, 14% from restaurant sales, 10% from services and a small percentage from providing lodging and other services. Likewise, recreation providers responding to the survey earn 61% of their revenues by providing recreational services (boat rentals, guide services, etc.), 19% by retail sales, 17% by other (which primarily includes transportation services) and the remainder by restaurant and lodging sales. Other businesses include a wide variety of uses such as agriculture, construction, public entities (City of Chelan, Port of Chelan County etc).

5.2.2 Legal Structure

Most of the responding businesses were either sole proprietors or corporations. This typically reflects the relative size of the business. The next largest category was partnerships (20% of respondents). The remainder of the firms were limited liability corporations or did not answer the question. (See Table 28)

Table 28 – Legal Structure of Respondents

Business Type	Sole Proprietor	Partnership	Corporation	LLC	No Answer	Total
Services	4	8	4	1	0	17
Lodging	14	3	3	2	0	22
Other	1		4		4	9
Recreation	4	1	4	1		10
Retail	6	2	3			11
Total	29	14	18	4	4	69
Percent	42.0%	20.3%	26.1%	5.8%	5.8%	100.0%

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.2.3 Experience

Approximately one-third of the respondents have been in business less than five years. Other respondents were relatively evenly split between 5 to 10 years, 10 to 20 years and more than 20 years. More than 40% of the businesses responding have been in business for more than 10 years. This reflects a relative stability in the business climate.

Table 29 – Years in Business

Business Type	< 5 yrs	5 to 10	10 to 20	> 20 yrs	No Answer	Total
Services	2	4	4	6	1	17
Lodging	8	5	4	4	-	21
Other	2	1		4	1	8
Recreation	2	4	4		2	12
Retail	8	1	1	1		11
Total	22	15	13	15	4	69
Percent	31.9%	21.7%	18.8%	21.7%	5.8%	100.0%

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Approximately 36% of the respondents (25 firms) have run businesses in the Lake Chelan area. (See Table 30) These business experiences have ranged from 1 year to 50 years, as follows:

- < 5 years (3 responses)
- 5 to 10 (5 responses)
- 10 to 20 (11 responses)
- > 20 years (6 responses)

About one-third of the survey respondents (especially those in the retail or other business types) also had experience running a business outside of the Lake Chelan area. Most frequently, these businesses were located in Eastern Washington (6 responses) and Western Washington (4 responses).

Table 30 – Experience with Other Businesses in the Lake Chelan Area

Business Type	Yes	No/No Answer	Total
Services	6	11	17
Lodging	6	15	21
Other	4	4	8
Recreation	6	6	12
Retail	3	8	11
Total	25	44	69
Percent	36.2%	63.8%	100.0%

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.2.4 Size, Ownership & Lease Characteristics

Most of the respondents (60%) own their store location. The remainder (40% of respondents) rent their space or did not answer the question. The size of the business space varied among respondents, primarily depending on type of use. Lodging facilities occupied the largest space (up to 48,000 square feet). Most service businesses were in the 600 to 3,000 square foot range but one respondent had 12,400 square feet. Recreation and retail space were approximately the same size, ranging from a few hundred square feet up to 3,500 square feet. Rents ranged from a low of $0.33 per square foot per month ($4 per square foot per year) to $1 per square foot per month ($12 per square foot per year). This range applied to both services and recreation providers. Responding retailers had average rents of approximately $7 per square foot per year.

Most renters have a term greater than 3 years (66%). Only one is on a month to month basis and 5 respondents have 1-year leases. (See Table 31)

Table 31 – Own or Rent

Business Type	Own	Rent	No Answer	Total	Size (sq.ft.)	Rent ($/Mo.)
Services	8	8	1	17	600 to 12,400	$.33 to $1.00
Lodging	18	1	5	24	1,100 to	
Other	6		3	9		
Recreation	7	3		10	350 to 3,500	$.33 to $1.00
Retail	3	8		11	600 to 3,500	$.50 to $.65
Total	42	20	9	71		
Percent	59.2%	28.2%	12.7%	100.0%		

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.2.5 Number of Employees

Responding businesses reported 667 full-time employees, and 145 part-time employees. Full time employment can range from 426 to 833, depending on market conditions. Likewise, part time employment can account for between 46 and 148 employees. Of the tourism-related businesses, lodging and recreation have the largest need for part-time employment. However, there are also substantial part-time employees associated with "other" business types (primarily agriculture). (See Table 32)

Table 32 – Current Number of Full-time Employees

	Full Time			Part Time		
Business Type	Current	Seas - High	Seas – Low	Current	Seas - High	Seas - Low
Services	96	34	33	12	11	9
Lodging	67	297	111	51	71	19
Other	414	402	252	32	4	0
Recreation	67	81	17	32	34	6
Retail	23	19	13	18	28	12
Total	667	833	426	145	148	46

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.3 Market Characteristics

5.3.1 Market Dependence

In general, most survey respondents receive the majority of their sales from the Central Puget Sound region (44%) followed by the next largest market which is the local area (26%) and then by other Washingtonians (13%). However, Lake Chelan Valley businesses have a relatively different market perspective, depending on the nature of their business. Service and retail businesses have close to or more than half of their sales from the local market, whereas other firms draw much more heavily from Central Puget Sound or points more distant. In particular, other firms (dominated by orchardists) are much more dependent on the non-Washington U.S. and foreign sales markets.

Table 33 – Sale Estimates By Market (%)

Business Type	Locals	Other Chelan County	Central Puget Sound	Other Wash-ington	Other U.S. citizens	Foreign visitors	Other
Services	60	8	28	2	2	0	0
Lodging	1	1	72	17	6	3	1
Other	4	3	44	6	31	13	0
Recreation	15	9	40	23	11	3	0
Retail	47	10	25	13	2	0	4
All Types	26	5	44	13	7	2	3

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

A second question in the survey sought to further probe the dependence of the firm on various market groups. This includes indirect dependence, which takes into account local sales that are generated by the tourist economy (e.g., by employees of tourism-related firms). Taking indirect dependence into account, respondents estimated that local sales (from full-time and part-time residents) could represent as much as 36% of market dependence. (See Table 34)

Table 34 – Market Dependence (%)

Business Type	Full-time local Lake Chelan area citizens	Part-time residents in the local area	Non-local Chelan county citizens	Central Puget Sound citizens	Other (non-county) U.S. citizens	Foreign citizens	Other
Services	59%	9%	5%	25%	1%	0%	0%
Lodging	0	0	14	69	11	2	2
Other	10	8	8	30	31	13	0
Recreation	17	7	14	43	15	3	3
Retail	49	15	9	17	7	1	3
All Types	29	7	11	40	10	2	2

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

In addition, the impact from other non-local Chelan County residents also increased substantially. Respondents indicated a dependence on Puget Sound and other U.S. citizens (again, mainly Washington State citizens) of approximately 50%, with 2% due to foreign citizens. When asked to discuss how this mix of business has changed in the recent past, most firms responded that it has remained fairly steady. A few respondents noted:

- Gradual increases in sales to Puget Sounders,
- More business with part-timers (many of whom are from Puget Sound), and,
- Convention-related lodging business is growing and reaches throughout the state.

Businesses defined their primary and secondary markets as follows:

- Service providers and Retailers – primary market is generally the local Chelan area (Chelan Valley) with a secondary market reaching south to Wenatchee and west into Central Puget Sound.

- Lodging and Recreation Services – the primary market is mainly Central Puget Sound (I-5 corridor from Everett to Tacoma) with the secondary market mainly in Washington State reaching north and south along I-5 and into the Tri-Cities. Some firms also draw from other parts of the U.S. and into foreign countries.

5.3.2 Gross Revenues and Seasonality

The average gross revenue reported by respondents was approximately $618,000 across all types of firms. Service and lodging providers reported above average gross revenues. Other sectors reported below average gross revenues.

Table 35 – Estimate of Gross Revenues and Seasonality (Unweighted by Gross Revenues)

Business Type	Average Gross Revenue	Q1	Q2	Q3	Q4
Services	$ 932,518	47%	20%	19%	14%
Lodging	$ 741,364	3	14	78	6
Other	$ 540,000	13	13	13	63
Recreation	$ 387,817	12	18	54	15
Retail	$ 285,333	11	30	41	17
All Types	$ 618,528	20	19	47	14

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

The seasonality of gross revenues is reported in Table 35. The third quarter represents nearly 50% of all sales (47%) followed distantly by the first and second quarters (20% and 19%, respectively) and then by the fourth quarter (14%).

There is substantial variation in seasonal sales by type of business. The lodging industry is heavily dependent on the third quarter. Retailers are dependent on the third quarter but also rely heavily on the second quarter. Service providers are heavily weighted to the first quarter and other businesses (primarily agriculture) are dependent on the fourth quarter.

5.3.3 Sales Trends & Outlook

For most types of business, business sales have increased during the past three years – on average 2% in 1995 to 1996, 7% from 1996 to 1997 and 12% between 1997 and 1998. It should be emphasized that 1998 was a particularly good weather/water year and this factor influenced results. Not all businesses experienced an increase – the "other" type has remained steady or fallen (again, this business type is dominated by agricultural sales). (See Table 36)

Table 36 – Sales Trends over last three years (percentage higher in 1998 than in earlier year)

Business Type	1997	1996	1995
Services	10%	8%	5%
Lodging	14	25	29
Other	-	-	-
Recreation	11	19	23
Retail	27	34	33
All Types	12	19	21

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Respondents are all rather bullish about the next three years. On average, respondents estimate that sales will grow at double-digit rates every year. However, relatively less enthusiasm is projected by the lodging and "other" business types compared with other business responses. This reflects the relatively poor water and weather year impacting the lodging industry in 1999 and the present difficulties being experienced by orchardists. (See Table 37)

Table 37 – Expected sales growth in next three years (Percent)

Business Type	1999	2000	2001
Services	15%	14%	13%
Lodging	6	10	10
Other	5	7	10
Recreation	9	10	34
Retail	12	11	10
All Types	11	11	14

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Survey respondents were asked to rank their opinions on the state of the economy on a scale from 1 to 5 where 1 is very poor and 5 is excellent. Most respondents thought the current economy was slightly above average (e.g., across all respondents of 2.7, 2.5 is an average response). However, respondents have a positive view of the future: (See Table 38)

- gradual growth is projected over the next two years (average responses across all business types of 2.8 and 3.2, respectively), and,
- stronger growth 5 years out (3.5 average response rate).

Table 38 – Prospects for Growth

Business Type	Services	Lodging	Other	Recreation	Retail	All Types
What is your opinion of the current state of the economy in Lake Chelan area?	2.3	2.8	2.5	2.6	2.7	2.7
What is your prognosis for 1999?	2.5	2.7	3.0	3.0	2.9	2.8
What is your prognosis for year 2000?	2.9	2.9	3.4	3.1	3.4	3.2
What are the long-term growth prospects (5 years)?	3.4	3.2	4.3	3.4	3.9	3.5

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Respondents were also asked "On a scale of one to five, how does the state of the local Lake Chelan area economy affect your business? (1 is no effect, 5 is high effect)." In concert with previous answers, the more revenue from or dependence on the local economy, the greater the impact on firms from the state of the local economy. The lowest dependence was identified by the lodging industry and the highest dependence by retailers. (See Table 39)

Table 39 – Impact of Local Economy on Businesses

Business Type	Average Score
Services	3.5
Lodging	2.5
Other	3.5
Recreation	3.6
Retail	3.9
All Types	3.3

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.4 Factors Affecting Businesses & Markets

5.4.1 Factors of Importance to Business

On average, businesses that responded to the survey ranked the following items as most important to their success in the following order of importance (from most to least important), as summarized below:

1. Lake Water Levels
2. Market Competition
3. Government Regulations
4. County Policies
5. Rent or Mortgage Cost
6. Availability of Quality Labor
7. City Policies

8. Cost of Labor
9. Cost/Availability of Supplies
10. Cost of Employee Training

With respect to governmental regulations, respondents mentioned the following as most critical in conducting business: presence of the National Park, watercraft licensing, water levels, fish permits, too many police, beach requirements, taxes, OSHA Medicare, licenses & fees, landuse restrictions, growth management, Endangered Species Act (ESA), Employment Security, DSHS-AFH, DOL, WACS, Dept of Health, Dept of Ecology, building permits, and B&O tax, among other factors.

With respect to City and/or County policies, respondents mentioned the following: filtration plant, taxes, building permits, businesses located in residential areas, City-run business in competition with private sector, environmental, failure to recognize the "angling" market, parking, police, city maintenance, permits, planning, zoning, utility rates and Shoreline Management issues. (See Table 40)

Table 40 – Important Factors Affecting Business

Business Type	Services	Lodging	Other	Recreation	Retail	All Types
Lake Water Levels	3.5	4.4	2.7	4.6	4.2	4.0
Market Competition	3.7	3.7	4.5	3.7	4.0	3.8
Government Regulations	3.8	3.2	3.4	4.4	3.1	3.5
County Policies	3.1	2.9	4.2	3.7	3.2	3.3
Rent or Mortgage Cost	3.3	3.6	2.2	2.4	3.6	3.2
Availability of Quality Labor	3.3	3.0	3.5	2.4	3.2	3.0
City Policies	2.8	2.4	3.4	3.1	3.3	2.9
Cost of Labor	3.1	2.4	3.5	2.3	3.5	2.9
Cost/Availability of Supplies	3.1	2.2	3.7	1.9	3.6	2.8
Cost of Employee Training	2.6	2.1	2.0	1.7	2.6	2.2

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.4.2 Factors of Importance to Markets

On average, businesses ranked the following items as most important to their respective markets in declining order of importance from most to least important: (See Table 41)

1. Improved Businesses in Chelan County
2. Competing resort communities
3. Changing Customer Tastes
4. Advent of Big-Box Retailers in Wenatchee
5. County Policies
6. City Policies

Table 41 – Important Factors to the Market

Business Type	Services	Lodging	Other	Recreation	Retail	All Types
Improved Businesses in Chelan Co.	3.5	2.9	2.8	3.0	3.4	3.2
Competing resort communities	2.6	3.4	1.8	3.5	3.2	3.1
Changing Customer Tastes	2.7	3.0	1.7	2.4	3.6	2.9
Big-Box Retailers in Wenatchee	2.7	1.9	2.3	1.1	3.1	2.3
County Policies	2.5	2.1	1.0	1.3	1.8	2.1
City Policies	2.5	2.1	1.0	1.3	1.8	2.1

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.4.3 Factors of Importance to the Individual Respondent's Business

On average, businesses ranked the following items as most important to their own business in declining order of importance from most to least important: (See Table 42)

1. Personal Ambition
2. Public Opinion
3. Consumer Tastes/Preferences
4. Market Competition
5. Personal Financing
6. Chamber of Commerce
7. Available Support Services
8. Transportation Improvements
9. Govt. Regulations/Zoning
10. Bank Financing
11. City of Chelan
12. Business Planning
13. Workforce Availability
14. Chelan County
15. Transportation Costs
16. US Government Agency

Table 42 – Important Factors to the Business

Business Type	Services	Lodging	Other	Recreation	Retail	All Types
Personal Ambition	4.4	3.8	3.3	4.0	4.8	4.1
Public Opinion	4.3	4.0	3.6	3.9	4.6	4.1
Consumer Tastes/Preferences	4.1	4.2	3.4	3.9	4.5	4.0
Market Competition	4.3	3.8	4.0	3.8	4.3	4.0
Personal Financing	3.9	3.4	4.4	4.2	4.3	3.9
Chamber of Commerce	3.1	4.2	3.2	4.4	4.3	3.9
Available Support Services	2.3	3.8	3.5	3.6	4.5	3.7
Transportation Improvements	3.4	3.6	3.3	2.9	4.1	3.4
Govt. Regulations/Zoning	3.8	3.2	4.0	3.5	3.2	3.4
Bank Financing	4.0	2.8	4.4	3.0	3.3	3.3
City of Chelan	3.3	3.2	3.2	3.4	3.4	3.3
Business Planning	3.6	3.1	3.0	3.1	3.6	3.3
Workforce Availability	2.9	3.3	3.8	2.4	3.5	3.1
Chelan County	2.6	3.3	3.2	2.8	3.1	3.0
Transportation Costs	2.9	2.9	2.3	2.4	3.5	2.9
US Government Agency	2.2	-	2.7	2.1	2.7	2.4

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.4.4 Relative Prices and Costs in Chelan

Nearly three quarters of the respondents felt that the prices charged by businesses in the Chelan area are higher than in other areas. (See Table 43)

Table 43 – Are Prices Higher in Chelan?

Business Type	Yes	No/NA	Total
Services	16	1	17
Lodging	16	6	22
Other	6	3	9
Recreation	6	4	10
Retail	7	4	11
All Types	51	18	69
Percent	73.9%	26.1%	

NA means No Answer

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Some respondents recognized that:

- Prices are not always higher (e.g., it pays to comparison shop in Wenatchee) but there is a generalized local perception by most residents that prices are higher.
- Some respondents pointed out that the quality in Chelan of some products (clothing, as an example) is higher than at discount or big-box retailers and that there is greater value in the local product if quality is taken into account. On the other hand, gasoline and food

prices were called out as examples where quality is the same and prices are higher than in Wenatchee.

- In addition, some respondents expressed loyalty to local shops – "I have a policy to shop locally and am willing to pay a little more."

Other reasons for higher prices:

- Lack of big box retailers in Chelan that have the buying power & economies of scale.
- Chelan is a tourist destination and is far away from distributors so there are higher transportation costs
- There is short season for tourists - 90% of income comes in 3 months but overhead covers a 12-month span.

When asked if it is more costly to operate a business in Chelan, a majority of the respondents disagreed (48% thought it was more costly and 52% thought it wasn't more costly). Respondents recognized that:

- Overall, the cost of living is slightly higher in Chelan,
- Some costs are higher (particularly freight/transportation costs, land lease/rent, taxes, utility rates for sewer and water, among others) but that others were lower (labor was mentioned by several respondents, also lower electrical rates)

Table 44 – Are Costs Higher in Chelan?

Business Type	Yes	No/NA	Total
Services	11	6	17
Lodging	9	13	22
Other	4	5	9
Recreation	3	7	10
Retail	6	5	11
All Types	33	36	69
Percent	47.8%	52.2%	

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.4.5 Importance of Festivals & Events

Respondents expressed mixed emotions about the importance of festivals. Those businesses that cater to tourists or retirees think that the festivals are a critical or extremely important component of their businesses. Many of these businesses expressed that the Chamber is doing a great job in promoting the community. Respondents noted:

- "We need all events to help the bottom line",
- "Any activity which brings people to town can be of benefit to my business - often indirectly."

The festivals/events that were specifically mentioned included:

- 4th of July Fireworks
- Apple Blossom,
- Harvest Festival
- Winterfest,
- Chelan Street Fair,
- Bach Festival,
- Halloween,
- Mountain Bike Festival,
- Hydro Fest,
- Golf Tournament
- Salmon Derby

Other survey respondents that are less directly influenced by tourism mentioned potential problems (notably parking constraints)

- "These events/festivals do nothing for business, but they bring people to town and that's good!"
- "During the street fair, we have to close down because there is no place to park! And this causes us to lose business"
- "They are held on weekends when we are already busy. If anything they probably hurt my company."
- "Events affect retirement desires. My business depends on people wanting to retire here."

Approximately one-quarter of the respondents mentioned that they would be interested in helping with event/festival organization. Several respondents that indicated they would not be interested are already involved and plan to continue to be involved. (See Table 45)

Table 45- Interest in Supporting Festival Efforts

Business Type	Yes	No/NA	Total
Services	4	13	17
Lodging	5	17	22
Other	1	8	9
Recreation	2	8	10
Retail	5	6	11
All Types	17	52	69
Percent	24.6%	75.4%	

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.5 Importance of Factors on the Chelan Economy

Among all of the factors that impact the Chelan economy, respondents ranked the following as the top eleven factors:

1. Lake Water Levels
2. General Economic Conditions
3. Keeping Lake Levels at Current Levels
4. Tourist Information Center
5. Bringing Lake Levels Up Earlier in the Year
6. Keeping Lake Levels up later in the year
7. Lack of Marketing of Lake Chelan Area
8. Lack of Shared Vision for Success
9. Lack of Leadership
10. Inadequate Advertising
11. Drawing Down the Lake in the Summer

Five of the top factors impacting the local Chelan economy involve water levels in Lake Chelan. "Water levels" as a general observation was ranked as the most important factor. Keeping current lake levels was mentioned as the third most important factor. Bringing lake levels up earlier in the year was slightly more popular (5^{th}) than keeping lake levels up later in the year (6^{th}). Respondents also noted their concern over considerations to draw the Lake down during the summer period by listing "drawing down the Lake in the summer" as the 11^{th} most important factor. This later response may reflect respondents' perception that drawdowns in summer are unlikely and thus not as important. (See Table 46)

Table 46 - Importance of Factors on the Chelan Economy

Business Type	Services	Lodging	Other	Recreation	Retail	All Types
Lake Water Levels	3.9	4.5	4.2	4.6	4.6	4.3
General Economic Conditions	4.0	3.9	4.1	4.3	4.8	4.2
Keeping Lake Levels at Current Levels	3.5	4.5	4.5	4.2	4.6	4.1
Tourist Information Center	3.7	4.1	3.6	4.3	4.6	4.0
Bringing Lake Levels Up Earlier	4.0	3.9	4.0	4.3	3.9	4.0
Keeping Lake Levels up later in the year	4.2	3.6	4.0	3.7	4.0	3.9
Lack of Marketing of Lake Chelan Area	3.3	4.0	4.3	4.0	4.3	3.9
Lack of Shared Vision for Success	3.3	3.7	4.3	4.0	4.5	3.8
Lack of Leadership	3.3	3.8	3.7	3.8	4.2	3.6
Inadequate Advertising	2.8	3.8	3.7	3.5	4.2	3.5
Drawing Down the Lake in the Summer	3.3	3.8	4.0	3.2	4.0	3.4
Volunteer Burnout	3.5	3.3	3.4	3.3	4.2	3.4
Wrong or Inadequate Capitalization of	3.1	3.3	4.1	3.6	3.4	3.4
Lack of Festivals/Events	2.7	3.3	3.4	2.6	4.2	3.1
Current Ownership Changes	3.0	2.5	2.0	3.1	3.6	2.9

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Other important factors include the general economic conditions, lack of shared vision for success, lack of leadership, inadequate advertising, volunteer burnout, among other factors.

5.6 What businesses/services are not in Chelan that you would like to see?

Respondents were asked to suggest what businesses or services they would like to have in the local area.

5.6.1 Services

Respondents suggested additional service businesses 31 times. The most frequently mentioned businesses were computer service and repair, medical offices (optometrist, natural health), advertising agency, Laundromat (especially one with large machines), marine parts and service center, appliance repair and housekeeping services (especially oriented toward lodging industry).

5.6.2 Retail Businesses

Respondents suggested additional retail businesses 30 times. At the top of the list, restaurants were mentioned 17 times, the most frequent of all responses. Respondents wanted a better variety of restaurants, including:

1. an upscale restaurant on the lake,
2. more fast food and/or "all you can eat" outlets,
3. more restaurants serving breakfast, and,
4. new types of facilities such as a brewpub, among other requests.

Respondents also wanted a discount store, sports/recreation outlets, and a winery as well as several other specific types of retail businesses. (See Tables 47 & 48)

Table 47 – Desired Businesses & Surveys – Services

Specific Suggestion	Responses
Computer services	4
Medical	4
Ad agency	3
Laundromat	3
Marine parts center	3
Appliance repair	2
Housekeeping Service	2
Carpet cleaning	1
Child and teen-oriented businesses	1
Community college	1
Dry cleaners	1
Grant writers	1
Machine shop	1
Newspaper	1
radio station	1
regular telephone service in Stehekin	1
site management	1

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Table 48 – Desired Businesses & Surveys – Retail

Specific Suggestion	Responses
Restaurant	17
Costco or similar discount store	2
Retail (in general)	2
Sport & recreation retail outlets/bike shop/kayak/sports store that caters to recreationists	2
Winery	2
Bakeries	1
brewery wine shop	1
business supply products	1
clothing	1
fish market	1

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.6.3 Other Businesses

Regarding other types of businesses, respondents wanted manufacturing or high-tech firms as well a diversification into other forms of agriculture (grapes and Christmas trees) and a destination resort. (See Table 49)

Table 49 – Desired Businesses & Surveys – Other Category

Sector	Total #	Specific Suggestion	Responses
Agriculture	1	Agricultural crops (grapes Christmas trees)	1
Industry	9	Manufacturing or light industrial	8
		Hi-tech business	1
Lodging	1	Destination resort	2

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.6.4 Recreation Businesses

Respondents suggested additional recreational businesses 22 times. At the top of the list, golf courses were mentioned 7 times, the most frequent of all responses. Respondents also suggested a marina and winter ski area among other types of facilities. (See Table 50)

Table 50 – Desired Businesses & Surveys – Recreation Services

Specific Suggestion	Responses
Golf course	7
Marina	2
Winter ski area	3
Amusement park	1
Cruise ship	1
Downhill ski facility	1
More entertainment	1
Horseback riding	1
Movies	1
More live music	1
Public indoor pool	1
Soccer fields	1
Theatre	1

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

5.7 Economic Conditions

5.7.1 What factors have caused the current conditions in Chelan?

Most respondents thought that the current economic conditions in the Chelan area were caused by the production and pricing problems in the apple industry. Respondents thought the next largest factor was the condition of the tourism industry which is doing well but highly dependent on the weather. (See Table 51)

Table 51 – Main Factors Causing Current Conditions

Factor	Responses
Apple industry problems	18
Tourism/weather	12
Other	7
All aspects	37

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Other responses included:

- "We need to create or recreate an excitement about Lake Chelan - it's one of the best features in Washington State."
- "If current conditions are defined as slow/bad - it would be that local businesses are trying to maximize their ROI while the iron is hot - summer!"
- "Lack of ability/will to change with the times - need to diversity."
- "Lack of advertising since Wapato Point stopped promoting"
- "Continued impact from the fires in 1994."

- "Lake level conditions"
- "Many of Chelan's mainstreet businesses have been owned by the same people for years. Too many of them are not willing to invest in improvements of their storefronts & business space."
- "Marketing by Chamber - businesses working together to create an atmosphere where people want to visit."
- "Petty political infighting. Small mindedness, lack of leadership, too many complainers, not enough doers."

5.7.2 What should be done to improve the Chelan economy?

Respondents had the following suggestions regarding how to improve the local economy:

- Have the lake full earlier in the year and up later in the year (5 responses)
- Better attitude by business towards tourist (4 responses)
- More help from City in beautifying city, such as weeding, garbage cans empty frequently, sidewalk gum, crosswalks painted and other related beautification efforts. (4 responses)
- More people (tourists) year-round (3 responses)
- Promoting more diversity in terms of retail and recreational opportunities(3 responses)
- Common sense approach to a multiple use concept of Lake Chelan. (2 responses)
- Reasonable pricing & housing (2 responses)
- Relax government involvement (2 responses)
- Stay open later especially during summer! (2 responses)
- Develop winter tourism business (1 response)
- Improving public trails for biking and walking (1 response)
- Joint marketing - Manson-Chelan working closer together in promotions (1 response)
- Less governmental regulations and interference in agriculture (1 response)
- Let more people here for conventions during shoulder seasons (1 response)
- More rigorous promotion of recreation opportunities, conserve existing environment. (1 response)
- Sponsor a volkswalk - around lake, around town. (1 response)
- Target the "high end" retail market by getting better retailers and improving storefronts & merchandise. (1 response)
- Try to draw light manufacturing, (1 response)
- We need a new full service resort w/all the trimmings - golf course - gourmet food - a real upscale place. (1 response)
- Positive encouragement from the City (1 response)

5.7.3 What natural amenities could be used to promote the area?

Survey respondents suggested the following amenities that should be used to promote the area:

- Improve trail network (pedestrian, bike, off-road, etc.) – (12 responses)
- Warm climate/weather – (8 responses)
- Lake Chelan - (7 responses)
- Winter activities (skiing, snow-mobiling and snow-shoeing) - (5 responses)
- More advertisements – (3 responses)
- More golfing - (3 responses)
- Increase recreational opportunities - (2 responses)
- Already promoting our natural amenities - (1 response)
- Available work force, - (1 response)
- Beauty of area - (1 response)
- Best quality agricultural products - (1 response)
- Build fish viewing area, - (1 response)
- Fishing - (1 response)
- Good schools - (1 response)
- Good transportation, - (1 response)
- Hiking, Biking, Snow-mobiling - (1 response)
- Lack of traffic congestion, - (1 response)
- Low housing vacancy rates, - (1 response)
- Low PUD electrical rates, - (1 response)
- More emphasis on fall season - (1 response)
- Riverwalk & bridges - lazer lights. - (1 response)
- Water activities - (1 response)

5.7.4 What would make your business more successful?

In order to make individual businesses more successful, we received a wide variety of responses, including:

- More people in town and more customers (12 responses)
- Lake level – up earlier and down later (3 responses)
- better apple prices & economy (3 responses)

- Year round business (3 responses). Convince Seattle people they can make it over the passes in the winter.
- 4% bank financing,
- A barrier net to keep most of the stocked fish from leaving the lake.
- a broader employer base
- a compatible approach to using Lake Chelan.
- a consistent, healthier, local economy and more tourists.
- A Town Bulletin Board for all, including tourists to see.
- another golf course - continued emphasis on fishing on lake - bike trails Chelan Manson and South Shore - Winter Recreation
- Bigger Signs
- common understanding
- consistent lake levels.
- create an image of a clean healthful beautiful area.
- customers are employed persons, families & businesses. Need good jobs & housing.
- entertainment music concerts
- Less gov't interference and regulations on all businesses.
- lower minimum wages - quality personnel
- management of more luxury homes
- more amenities reasonably priced
- More expertise in effective marketing. Increased "pool" marketing on the value of shopping locally. Easier & less expensive access to information modes (ability to have articles printed in newspaper, announced on radio, etc.)
- more fall & winter convention business
- More opportunity for development and change of land use as agricultural use is reduced. The small orchards in the valley cannot compete in the long run and will be economically non-viable.
- more recreational amenities - another golf course, public trails for hiking & biking
- neighborhood clean-up of businesses and residences
- looser slots at casino
- reasonable shop space near the highway
- snowmaking capabilities & public transportation to the ski area.
- telephones - we cannot communicate as needed with our guests/employees. We can't provide emergency communication.

- We are more dependent on Puget Sound area - but a stable climate of business in Chelan is important to our customers.
- winter activities

5.8 Discussion of Lake Level Issues

5.8.1 Lake Level Committee Recommendations

The survey unfortunately mis-stated the Lake Level Committee's recommendations by suggesting that the goal was to bring the lake up earlier and draw down earlier. The committee's recommendation was to attain 1,100 feet from Memorial day through Labor Day.

Taking the additional comments from the survey into account to reflect the respondent's true opinion, at least 70% of the survey respondents concur with the Lake Level Committee. In some cases, no additional comments were given. As a result, some of these respondents may also agree with the Lake Level Committee's recommendations but are listed as no or no answer in Table 52.

In short, there appears to be rather strong support from the business community to bring the lake levels up earlier and draw down at approximately the same time (or later).

Table 52 – Agreement with Lake Level Committee's Recommendation

Business Type	Yes	No/No Answer	Total
Services	14	3	17
Lodging	13	9	22
Other	5	4	9
Recreation	10	-	10
Retail	6	5	11
All Types	48	21	69
Percent	69.6%	30.4%	

Source: BST Associates, Survey conducted for Public Utility District No. 1 of Chelan County

Respondents who disagreed with the Lake Level Committee, had the following opinions:

- "I don't care about the water levels. My concern is pollution of the lake. Boaters and cabin owners and agriculture care less with waste/pollutants going into the lake. What about faulty sewer systems or cabins with no systems?"
- "In the absence of other changes, particularly in community leadership and attitude, raising the lake one month earlier is irrelevant."
- "While it would bring some business if up earlier, it doesn't really matter until school is out and the typical visitor begins to travel."
- "Keep it the same as always."

- We should "recognize the destructive nature of flooding from the Stehekin River. The lake should be low to gather spring run-off and down in the fall for the same reason. Homes and businesses have been constructed with the current lake levels in mind."

5.8.2 Impact on Business From Lake Levels up One Day Earlier or Later

Most respondents recognized that is very difficult to quantify the value of the additional business associated with bringing the lake up earlier or keeping it up later. The estimates by respondents ranged from:

- No impact (6 responses)
- $30 to $325 (6 responses)
- $1,000 to $5,000 (2 responses)

Other respondents thought that it might increase sales by 10% to as much as double.

5.8.3 Nature of Impact

Most respondents recognized that is very difficult to quantify the value of the additional business associated with bringing the lake up earlier or keeping it up later. The estimates by respondents ranged from:

- No impact (6 responses)
- $30 to $325 (6 responses)
- $1,000 to $5,000 (2 responses)

Respondents were asked to explain how the increased water level would impact their businesses. They suggested several direct and indirect effects:

- Direct Effects –
- "All boat dock slips would be available for rent, and all of our rental jet skis and boats would be usable. Lake level depends on boat launching and buoy access. An earlier fill would improve lake access. Recreational climate would be improved. Over the years, recreational boaters and fishers have learned not to visit Lake Chelan in early spring or late fall. Not because the fishing is bad, but because low lake levels make launching & moorage very difficult. It would take time to convince people that things have changed, but the impact on the Chelan economy would be tremendous."
- "If the lake is cold because it is filled too late. It impacts usage. Fill it early & let it warm up."
- "However, some respondents stated the water access issue to be assuring that the level high enough for summer time water craft/recreation? (e.g., easy boat entry, etc.) That's all I care about."
- "Currently, I am nearly one month behind in irrigation because of lake levels."

- Indirect Effects -
- "Land values around the lake would be improved with a higher lake level for a longer period of time - buyers will pay more for property they can use for a longer period of time in the spring, summer & fall months."
- "Every activity you can name is affected by the lake level being below 1,100' during the tourist season."
- "More owners would use the facilities which would mean more business for the local merchants."
- "More visitors for a longer period of time would bring more business"
- "My gross income is tied to the gross number of people in the Basin, which is tied to the lake level!"
- Limited or No Impact
- "No Impact on my business"
    - "We are only open 101 days Memorial Day to Labor Day. We are affected very little by lake depth on days outside that period."

5.8.4 Impact on Business From Drawdowns in Summer

One important stakeholder has suggested that a plan be considered to draw down Lake Chelan during the summer to assist in flow migration for Columbia River salmonids on the Endangered Species Act (ESA). Respondents reflected that if this were to occur it would directly impact the tourist industry and thus indirectly impact all businesses in Chelan. Comments included:

- "It would close down the town of Chelan, if successful in lowering lake from May through Aug."
- "If the lake is drawn down 13 feet during peak season less people could use these summer homes/cabanas. Less people would be attracted to Lake Chelan for vacations and summer homes. Even a 2-foot drop during the season will make it more difficult for everyone to enjoy the lake."
- "If the lake is drawn down during the summer it would ruin our "whole" economy. Tourism would stop and the orchards would have problems with an adequate water supply. The Lake Chelan area as we know it would cease to exist."
- "If the lake were dropped 13 ft in the summer it would totally destroy the lakefront property values. I could see a 50% price reduction in lake front values and a 25-30% reduction in the rest of the residential areas - a 2 ft lower level would require costly work to dock systems and would reduce the esthetic value of the shoreline."
- "Our entire recreation & tourism economy centers around the lake. Anything we can do to improve lake access & use will enhance our economy long term. A full lake represents full recreation potential. Filling the lake up earlier would help reduce the seasonality of our tourist/recreation economy."

- "There is probably no direct impact on my business but anything which adversely affects the local economy, however, will result in fewer dollars and less discretionary income for people to spend on my services."
- "We, and all our customers, come to Lake Chelan to enjoy the recreational and environmental amenities directly associated with access to the lake. We come to be in and on and near the lake. We personally contributed thousands of dollars to the local economy during our time here, and our customers likewise bring tourist dollars to Chelan. We employ local labor. If lake levels are lowered, our customers, and we will infuse other economies. We will not eat in Chelan restaurants, we will not employ Chelan residents, shop in Chelan stores, bowl at Chelan bowling alley, etc. etc."

5.9 Additional Comments

Additional comments from survey respondents are presented below:

- "Apples are dying. Help tourism grow. it's our only chance. Events, events, and activities. Year round activities golf, biking, skiing, snow-mobiling"
- "As stated, we are a condominium association (2nd homes) controlled by the west side of the Cascades. We do have approximately 50 owners who rent their units in the summer again for the most part to west side residents. We also have 28 timeshare units that are "banked" in the off season and utilized by RCI owners who "transfer in" from all over the world. We have 13 units that are owned by WorldMark, the Club and has a one-year waiting list. These folks again come from up and down the West Coast - Canada to Mexico. The remaining 40 units are truly used as "vacation" homes by their owners. We are definitely "supporters" monetarily of the local businesses and opposed to any regulations that would have an adverse affect on the business climate. P.S. Movement in the lake levels significantly impacts homeowners with fixed docks on the lake. A fluctuation of 2' is the difference of being able to use their docks or not."
- "I'm very concerned about the over-zealous policing in Chelan and in Central Washington. Young people who have been hassled in the past don't return later when they are taking vacations with their young families. The Chelan police dept is overstaffed and overfunded. Consequently they look for ways to confront outsiders - especially younger people - without provocation. Water police are especially harsh in dealing with boaters. I've asked about warning tickets in relation to citations, but received no reply. Unhappy visitors don't come back! Ever!!"
- "In Stehekin at the head of the lake and on the river, we are concerned with flooding - lake should be controlled for that or we are "history". In order for Stehekin to compete with the rest of the world we need an adequate and affordable communication system. i.e. we need telephones in Stehekin. The law provides for this - there are funding sources."
- "The Lake Chelan Comprehensive Public Trails Plan is in the process of being implemented and will be the one plan which will open up a number of exciting marketing possibilities to visitors."

- "Since the dam was built in 1927 the values and use of Lake Chelan have climbed many fold. Therefore, the value of the tax base and the generated dollars by uses other than power contribute a much larger percentage of income to the area than in 1927."
- "My business depends on the quality of life in Lake Chelan Valley. Unless the lake provides recreational opportunities during most of the year, this will not be desirable place to retire. Population will fall and we will move on."
- "Our business is one of those least impacted by lake levels. Indirectly, if Chelan loses its business base (because of lake levels or for any other reason) the clinic cannot survive. Without the clinic, there would be no doctors to support the hospital & other health services in this valley. The inter-dependency of the medical community is vital to retaining local medical services. Development of year round businesses would greatly support the community."
- "The casino has been the biggest factor in our yearly increases over past 5 years. However, this year they seem to be coming here less - must be competition from casinos in other areas."
- "The relicensing of the Chelan Dam represents a 50-year event. Who can imagine the recreational demand and activity on Lake Chelan in the next 50 years with our growing population and Puget Sound economy? The opportunity to improve the Lake level for public use is a very important issue for the Lake Chelan Valley."
- "There is very little interest after Sept - Labor day for condo rental - other than the big locations that advertise like Wapato - Improving late Fall - early spring or even winter would be great - that's one of the reasons we joined chamber."
- "What will harm Lake Chelan & Chelan tourism is over building, regulations for shoreline management ignored by planners & variances given whenever asked for. Building too close to lake is allowed. When lake becomes polluted & milfoil takes more control of the lake then it already has then we all lose. Cabin owners like me and especially the town of Chelan, which depends on tourism. I find all of this disturbing!"

6 Future of Agriculture in the Chelan Area

The following chapter presents forecasts for agriculture in the Lake Chelan area economy.

6.1 Overview of Chelan Agricultural Industry

As shown in Table 52, the agricultural industry in Chelan County consists almost entirely of crop production, and nearly all of crop production is in the fruit, nut and berry sectors. According to the 1997 Census of Agriculture, the total value of agricultural products sold in Chelan County in 1997 was $146.4 million, and of this total $145.7 million, or 99.5% came from the sale of crops. The remaining 0.5% was due to the sale of livestock and poultry. Within the crops sector, the value of crops sold totaled $144.8 million, or 99.4% of the total crop value and 98.9% of the total agricultural products value. The remainder of the value of crops consisted of nursery and greenhouse crops ($0.4 million, or 0.3% of crop value) and hay, silage, field seeds, grass seeds ($0.2 million, or 0.1% of total crop value).

Orchards account for the overwhelming majority of agricultural land use in Chelan County, with orchards accounting for approximately 29,200 acres of a total of 33,200 acres, or 88.0% of total agricultural land. Hay, wheat, and barley production together use approximately 11.8% of agricultural land, and nurseries account for less than 0.2%. Chelan County has long been one of the most important apple-growing counties in Washington State. However, trends are occurring that may lead to changes in the relative size of each county's apple industry, including:

- A decrease in the total number of farms engaged in raising apples within the state,
- Number of farms is decreasing,
- Total acreage devoted to apples has increased,
- Average size of the orchard has increased, and,
- Average value of land, building, and equipment increased

In short, the apple industry is fast becoming a more corporate sector with fewer small orchards. (See Tables 53 & 54)

Table 53 - Chelan County Profile, 1997 Census of Agriculture

Item	Quantity	State Rank	State Universe	US Rank	US Universe
Market Value of Agricultural Products Sold -($1,000)					
Total value of agricultural products sold	146,403	10	39	256	3,076
Value of crops including nursery	145,675	8	39	71	3,070
Value of livestock and poultry	728	38	39	2,922	3,069
Top Five All Commodities – Value of Sales ($1,000)					
Fruits, nuts, berries	144,846	3	38	20	2,547
Cattle and calves	439	36	39	2,795	3,063
Nursery and greenhouse crops	423	29	37	1,410	2,790
Hay, silage, field seeds, grass seeds	195	32	39	2,376	3,043
Wheat	(D)	20	31	1,553	2,578
Top Five Commodities – Livestock Sold (number)					
Cattle and calves sold	1,438	36	39	2,738	3,063
Hogs and pigs sold	(D)	12	39	1,720	2,976
Broilers and other meat-type chickens sold	(D)	23	29	1,388	1,882
Sheep and lambs sold	58	37	39	2,215	2,765
Horses and ponies sold	49	28	39	1,672	3,015
Top Five Commodities – Livestock Inventory (number)					
Cattle and calves inventory	1,818	38	39	2,858	3,064
Horse and pony inventory	1,483	16	39	378	3,066
Colony of bees inventory	(D)	12	35	425	2,588
Hogs and pigs inventory	(D)	14	39	1,863	3,005
Layers 20 weeks and older inventory	203	33	39	2,299	3,002
Top Five Commodities – Crop Area					
Land in orchards-acres	29,249	4	39	36	2,693
Hay crops-acres	1,953	37	39	2,721	3,061
Wheat-acres	1,864	19	31	1,452	2,612
Barley-acres	(D)	23	31	706	1,411
All nursery-acres	56	30	36	1,457	2,619

Source: 1997 Census of Agriculture

Table 54 - Washington State Apple Production Detail by County

Year	Chelan	Douglas	Grant	Okanogan	Yakima	Total
Number of Farms						
1992	826	411	243	631	1,454	4,596
1997	690	353	318	503	1,334	4,207
% Change	*-16.5%*	*-14.1%*	*30.9%*	*-20.3%*	*-8.3%*	*-8.5%*
Avg. Annual Growth	*-3.5%*	*-3.0%*	*5.5%*	*-4.4%*	*-1.7%*	*-1.8%*
Total Acres						
1992	17,825	14,126	24,154	25,395	61,910	169,107
1997	17,096	14,383	33615	,24,164	75,264	204,674
% Change	*-4.1%*	*1.8%*	*39.2%*	*-4.8%*	*21.6%*	*21.0%*
Avg. Annual Growth	*-0.8%*	*0.4%*	*6.8%*	*-1.0%*	*4.0%*	*3.9%*
Average Acres per Farm						
1992	22	34	99	40	43	37
1997	25	41	106	48	56	49
% Change	*14.8%*	*18.5%*	*6.3%*	*19.4%*	*32.5%*	*32.2%*
Avg. Annual Growth	*2.8%*	*3.5%*	*1.2%*	*3.6%*	*5.8%*	*5.7%*
Pounds (million)						
1992	NA	NA	NA	NA	NA	4,161.4
1997	367.6	305.6	994.8	503.0	1,853.6	4,890.6
% Change						*17.5%*
Avg. Annual Growth						*3.3%*
Pounds/acre						
1992	NA	NA	NA	NA	NA	24,608
1997	21,502	21,247	29,594	20,816	24,628	23,895
% Change						-2.9%
Avg. Annual Growth						-0.6%

Source: Census of Agriculture

6.2 Chelan Valley Apple Industry

In 1998, the value of the Chelan Valley fruit crop was estimated at $70.2 million, including the value of both packed and processed production by representatives of the Washington State University Agricultural Extension Office.

In 1998, the returns did not cover the cost of producing the crop, including the cost of labor, services, and materials necessary for the production of these crops. Under more normal economic conditions, the grower could expect an additional two to four dollars per box of apples,

which would increase local economic returns on land irrigated from Lake Chelan by an additional $10-$20 million[13]. (See Table 55)

Table 55 - 1998 Tree Fruit Production in Chelan Valley ($Millions)

Crop	Acres	Packed Production	Packed Value	Processed Value	Total Value
Apples	8,075	5.25 million boxes	$55.1	$1.7	$56.8
Pears	950	570,000 boxes	$8.0	$0.1	$8.1
Cherries	475	2,850 tons	$5.3	Included	$5.3
Totals	9,500		$68.4		$70.2

Source: WSU Agricultural Extension Service in Chelan

6.3 Forecast of Washington Apple Production

The IMPACT Center at Washington State University regularly produces a forecast of apple acreage and production in Washington State titled *Trends in Production, Utilization and Price of Washington Apples to 2005*. Dr. A. Desmond O'Rourke, Professor of Agricultural Economics at WSU, leads this effort. The following section summarizes (and borrows heavily from Dr. O'Rourke's publication) the most recent forecast document, which was prepared by Dr. O'Rourke in June of 1999. Dr. O'Rourke's basic conclusion is:

> that "total Washington State apple acreage will continue to increase through the turn of the century. Because of increased acreage and denser plantings, production at average yields in the year 2000 could exceed 1995 production by over 14 percent and by over 20 percent in the year 2005. In years of high yield, total production could exceed 160 million boxes. Fresh pack could consistently exceed 100 million boxes.
>
> Red Delicious and Golden Delicious will remain the top two varieties into the twenty-first century, but Fuji and Gala will leapfrog ahead of Granny Smith. Braeburn, Romes and Jonagold will achieve substantial production. Prices of the major varieties will remain under pressure (especially in years of above average yields), and will remain below those for the newer varieties for most of the 1990s. However, slated expansion of newer varieties could rapidly erase current price premiums."

[13] Tim Smith, WSU Extension Agent used the following assumptions for these estimates:
There are 9,500 acres of orchard irrigated from Lake Chelan
The fruit grown is 85% apples, 10% pears, and 5% sweet cherries.
This acreage produces 650 packed boxes and six tons of processing apples, 600 packed boxes of pears, and 6 tons of sweet cherries.
Most of the apples and pears produced are packed in the Chelan-Manson area.
The 1998 average value of apples was $10.50/box, pears - $14/Box, and sweet cherries - $1850/ton.

The three main factors involved in making projections of apple production are:

(1) an inventory of the trees in each age group in some initial year (in this case 1993, the year of the latest tree census),

(2) a yield curve of annual expected production per acre for trees in each age group, and,

(3) estimates of trees planted and trees removed from each age group in each year, so the inventory of trees in each subsequent year can be calculated.

"Future acreage and production for all Washington apples and for all major individual varieties were estimated through the year 2005. By that time, Washington apple acreage could exceed 185,000 acres, 10 percent above 1993 Census levels.

In general, the IMPACT Center anticipates a slow shrinkage of Red Delicious acreage from 110,000 in 1993 to 95,854 in 2005 (see Table 56). Thus, by 2005, the IMPACT Center anticipates that Red Delicious will account for 52% of Washington State apple acreage, compared to over 75% in 1986. Golden Delicious acreage is expected to decline gently and to reach 20,865 acres, 11.3% of Washington apple acreage, in 2005. Expansion of Granny Smith acreage has recovered in the late 1990s, as acreage has been removed in California. By 2005, acreage should reach 13,458 acres, 7.3 percent of the total. Based on the 1993 Fruit Acreage Survey, combined acreage of Gala, Fuji, Braeburn and Jonagold could reach 32,500 acres by 2000 and 38,000 acres by the year 2005. However, unforeseen production or price problems could lead to serious errors in that projection. Other varieties not now prominent are expected to increase during the 1990s. By the year 2005, close to 25 percent of Washington state apple acreage could be planted to varieties that were not commercially available in 1986."

Table 56 - Acreage of Washington apples. 1993 actual and 2000 and 2005 projected

Variety	Actual	Projected Acres	Projected Acres
	1993	2000	2005
Red Delicious	110,000	103,888	95,854
Golden Delicious	23,300	21,899	20,865
Granny Smith	8,500	11,817	13,458
Gala	5,900	13,582	17,813
Fuji	11,100	13,883	14,569
Braeburn	3,300	3,216	3,409
Rome	6,140[1]	4,084	3,694
Jonagold	1,200[1]	1,800	2,136
All Other	2,560	9,609	13,629
TOTAL	172,000	183,778	185,427

Sources: Actual 1993. Washington Agricultural Statistics Service. 1993 Washington Fruit Survey, 1993, Olympia, Washington, Desmond O'Rourke

6.3.1.1 Projected Production

"Using the projections of acreage of each variety at each age in each future year and multiplying by expected average yield gives U.S. expected average production of each variety in each year. The actual production in the crop year 1995 is compared with the projected production in 2000 and 2005 (Table 57). For reasons discussed earlier, some acreage may not be included in these projections.

It should be noted that the projected production for any year (say 2000) represents the volume that would be expected on average for a number of years around that period. A number of factors such as weather or alternate bearing can cause production from a given acreage to vary up or down in any single season.

These estimates suggest that at expected average yields, the Washington apple industry could produce 14.4 percent more apples in the year 2000 and 20.4 percent more in 2005 than it did in 1990. However, the mix of varieties produced could change dramatically. Red Delicious would remain the dominant variety into the twenty-first century unless a major tree removal program is initiated. Golden Delicious production would be expected to decline in a similar manner. If Granny Smith acreage recovers as projected, production would be expected to increase by the turn of the century. Production of the newer varieties, Gala and Fuji, would increase dramatically while Jonagold and Braeburn would increase rapidly. Production of other traditional varieties would decline, with the exception of Romes, which have been making a modest comeback."

The share held by Red Delicious could fall to about 50 percent in the year 2000 and below 45 percent by 2005. Golden Delicious share could fall to 14.9 percent in 2000 and 13.0 percent in 2005. Granny Smith shares could rise to 7.2 percent in 2000 and 8.8 percent in 2005. The share of the four newer bi-colored varieties, Gala, Fuji, Jonagold and Braeburn, which was less than one percent in 1990, could exceed 22 percent in 2000 and 26 percent in 2005. This has major implications for the pricing and promotion of all Washington apples.

Table 57 - Production of Washington apples, Actual 1995, and Projected 2000 and 2005 at average yields (Thousand 42-lb box equivalent)

Variety	Actual	Projected	
	1995	2000	2005
Red Delicious	69,214	67,000	62,300
Golden Delicious	23,355	19,700	18,000
Granny Smith	8,250	9,500	12,200
Gala	4,526	10,900	16,300
Fuji	5,376	13,700	14,500
Braeburn	1,471	3,200	3,400
Rome	1,290	2,200	2,500
Jonagold	952	1,600	2,000
All Other	1,042	4,300[1]	7,800[1]
TOTAL	115,476	132,100	139,000

Source: Desmond O'Rourke – WSU Impact Center

6.3.1.2 Projected Utilization of an Average Crop

A key factor affecting the price received for the Washington apple crop is how the product is allocated to fresh and processing markets. On the basis of historical allocations, the IMPACT Center estimated how much of the crop of each variety would be packed fresh and how much would go to all processing uses (Table 58). These historical allocations could change for newer varieties. As production expands and finding markets becomes more difficult, quality control standards for fresh pack will become more strict. By the year 2000, total Washington fresh packs of 100 million boxes will become the norm. That level was almost reached in 1998. Fresh pack of Red Delicious would exceed the 1990 level throughout most of the 1990s but decline sharply after the year 2000. Golden Delicious would show a similar decline as existing plantings age. However, in the case of Granny Smith, a resurgence of plantings in the late 1990s will boost fresh pack near the 9 million box level by 2005. Fuji could exceed 10 million fresh pack boxes and Gala 12 million by 2005. Braeburn should come close to 2.5 million and Jonagold 1.5 million. Similar trends would occur for processing uses. By the year 2005, less than 45 percent of processed supplies would continue to be Red Delicious and less than 13 percent Golden Delicious. Other varieties would become increasingly important after 1995. The increasing diversity of processed apples available will provide new challenges and opportunities for state processors.

Table 58 - Utilization of Washington apples, Actual 1995 and Projected 2000 and 2005 at average yields. (Fresh Pack 1000 42-lb boxes)

Variety	Actual	Projected	Projected
Fresh Pack (boxes)	**1995**	**2000**	**2005**
Red Delicious	48,436	50,304	46,763
Golden Delicious	15,570	14,774	13,505
Granny Smith	5,499	7,128	9,160
Gala	3,016	8,166	12,241
Fuji	3,415	10,298	10,919
Braeburn	982	2,397	2,543
Rome	859	1,680	1,884
Jonagold	552	1,237	1,520
All Other	661	3,238	5,844
TOTAL	78,990	99,221	104,379
Processing (Tons)			
Red Delicious	436,350	352,127	327,341
Golden Delicious	163,500	103,419	94,536
Granny Smith	57,750	49,894	64,120
Gala	31,700	57,161	85,686
Fuji	41,200	72,089	76,433
Braeburn	10,300	16,780	17,800
Rome	9,050	11,758	13,186
Jonagold	8,400	8,657	10,640
All Other	7,950	22,664	40,909
TOTAL	766,200	694,550	730,651

Source: Desmond O'Rourke – WSU Impact Center

6.3.1.3 Projected Fresh Prices

Washington apple prices are also affected by changes in U.S. per capita income, U.S. population, and supplies of other U.S. apples. It was necessary to make assumptions about changes in these variables. The IMPACT Center assumed:

- U.S. population would reach 275 million in 2000 and 287 million in 2005,
- U.S. per capita income would increase by 2 percent per year in real terms, close to the recent historical averages,
- per capita supplies of all other U.S. fresh apples would be 5 percent above the level of 1995 in the year 2000 and 10 percent in 2005.

Based on these assumptions, the efforts of the Washington apple industry to market an average crop would lead to a price close to that reached in 1995-96 in the years of 2000 and 2005. (Table 59). This relatively stable picture for all fresh apples would conceal divergent trends among the major varieties. The prices of Red Delicious and Golden Delicious are expected to recover as production falls in the late 1990s. The price of Granny Smith apples is expected to drift downward as supply increases. Prices of the newer varieties, Gala, Fuji, Jonagold and Braeburn, are likely to fall sharply during the late 1990s as production increases. As demand data for these varieties accumulates, it becomes increasingly clear that the presently forecast levels of future production will drive prices below production costs. Clearly, growers will have to take remedial measures such as funding major market promotional programs or uprooting trees rather than continuing to produce apples at a loss.

Table 59 - F.O.B. prices of Washington fresh apples, Actual 1995-96 and Projected 1995 and 2000 at average yields and 1998 prices

Variety	Actual	Projected (1996 prices)	
	1995-1996[1]	2000	2005
Red Delicious	$14.92	$13.29	$13.82
Golden Delicious	15.45	15.56	16.40
Granny Smith	18.47	19.54	16.59
Gala	25.29	18.42	10.76
Fuji	29.53	13.77	12.99
Braeburn	21.09	11.70	11.14
Rome	15.92	11.28	13.31
Jonagold	20.50	16.97	15.19
All Varieties	$16.22	$15.56	$15.31

Source: Washington Growers Clearing House Bulletin Apple Price Summary, 1995-96 season

Prices will be dramatically impacted if supplies increase as forecast and demand for these newer varieties is not somehow expanded. Prices would not, of course, fall close to zero before growers would take action by pulling trees. It should also be noted that these forecast prices reflect average yields. Actual yields in any year could vary by plus or minus 20 percent on any variety. This would affect average prices in the opposite direction.

6.3.1.4 Implication of Forecasts

The major conclusion of the forecast is that the fortunes of the major varieties and their growers is likely to shift in the 1990s. The reduction of Red Delicious acreage and the stability of acreage of Golden Delicious and Granny Smith apples should bring improving price trends to these varieties in the 1990s. In contrast, price prospects for Gala, Fuji, Jonagold and Braeburn are less promising since production has expanded dramatically faster than anticipated. Even at average yields, the current and projected acreage of these newer varieties will lead to very severe downward price pressure. In seasons of above average yields, that pressure will be even more intense. In addition, the IMPACT Center has no information on the possible effect on these prices of increased supplies of Gala, Fuji, Jonagold or Braeburn from other regions in the U.S., Europe, New Zealand or South America, which are also growing rapidly. Nor did the data exist to estimate the interaction of prices between these varieties, for example, the effect on Gala price of increased supplies of Fuji, or vice versa.

Clearly, the Washington State apple industry will need strategies to effectively harvest, handle and market crops even larger and more varied than the record crops of 1987, 1989, 1996 and 1998. The industry will need to refine the programs that have been developed to harvest and segregate fruit for different regional and seasonal markets. Control of size, appearance and internal quality will become even more critical. There will be new demands for improved storage technology, particularly for the newer varieties, as production grows and their marketing season lengthens. There will be a continued need to open and expand markets both domestically and in export.

The crises and controversies of the recent past are likely to reoccur in years of above average yield during the first decade of the twenty-first century when the industry will be called upon to handle record volumes of fruit. Now is the time to put in place adequate programs to meet the predictable problems of a growing industry.

6.4 Agricultural Industry Interview Notes

Interviews with apple industry representatives were undertaken in this study to better understand grower perceptions regarding key concerns and issues.

6.4.1 Economic Issues & Concerns

- Tourism is seasonal, while agriculture provides jobs year-round.
- Chelan is now a two-class town – those with lots of money and those with none. The packing industry used to support more of a middle class.
- The casino has had a large impact on increasing the number of visitors to Chelan during the off-season.

6.4.2 Apple Industry Issues

6.4.2.1 Competition - International

- Apple prices behave differently now than in the past. In the past prices would peak in the summer, before the new crop started arriving. Because of competition from the Southern Hemisphere and other places, this peak no longer occurs.

- Last year, China's growth in apple production was greater than Washington's entire apple production. Additional international competition is expected.

6.4.2.2 Competition - Domestic

- Problems with overseas markets have made the growers much more dependent on the domestic market. The domestic market in recent years accounted for 70% of the market, but in the last year or two has grown to 85% of the market.

- The average orchard in Chelan County is much smaller than the average orchard in the Yakima Valley.

- The Yakima Valley produces a very consistent product, because the orchards are large and level. With the Chelan orchards there is much more variability in quality. Overall, Chelan can produce better fruit, but it can also produce worse fruit.

- Until recently the Chelan growers have done an excellent job of selling Chelan Valley apples as the highest quality available, and have been able to command a premium price. Competition has made the premium price a thing of the past.

- Controlled-atmosphere storage had given the Chelan growers an edge over other areas, because the high-altitude fruit they grow lasts longer in storage. They still have decent product available up until the new crop starts to arrive.

- The Yakima orchards are accustomed to receiving a lower price, and can produce for a lower cost. Also, many of the orchards are owned by the packinghouses, and they do not need to make money from sales from the orchard.

- In the best times, Chelan growers could get $24 to $26 per box, while Yakima would get $16. Currently the price at the orchard in both Chelan and Yakima is $9 per box, while the cost of production is $10 to $12.

- There are lots of new trees being added in Quincy and the Yakima Valley, as well as in California.

6.4.3 Diversification Potential

- Diversifying away from apples is an interesting idea, but has some problems. Because cherries currently fetch such a high price many apple growers in this state are switching to cherries. But this means that when all of the new trees start to bear fruit there will be a glut of cherries, and prices will drop. Chelan cherry growers face the additional challenge of finding a packer to handle their product. Apparently, packers do not want cherries from trees on the edge of orchard, due to the risk of diseased fruit. But because the average orchard in the Chelan Valley is small relative to the Yakima area, a much larger percentage of the trees are near the edge of the orchard, as compared to cherry orchards in the Yakima Valley. Finally, the cherry season is very short – two to three weeks, and does not employ people in packing sheds year-round.

- Grapes are compatible with apples, and are a potential opportunity. It takes 3 to 5 years for a vineyard to start producing a usable harvest, and cost of production is only $1,000 per acre per year, compared to $3,000 per acre per year for apples. The Chelan Valley is an excellent location for growing white grapes.

- Organic apples are a strong market right now. While they do not account for much of the production right now, they are increasing in number. A drawback to organic is that an orchard must not use chemicals for a number of years to become certified as organic, and during these years production decreases, but the fruit can not be sold for the higher organic-fruit price.

6.4.4 Lake Level & Related Considerations

- On the south shore there are very few orchards left on the shoreline, because much of the land has been sold for residential development. There probably aren't a lot of orchards in the Chelan Valley that would be seriously impacted by new setback regulations that could be imposed by NMFS.

- Lowering the lake level could cause problems for some irrigators. Some of the shallow intakes around Chelan are located at 1090 feet. However, there are generally few problems encountered as a result of lake level between May and September. However, since new trees are planted in April and need to be irrigated immediately, the water level must be high enough for the pumps to draw. When the water gets too shallow, the pumps suck up debris from the lake, plugging sprinkler heads. This is especially a problem in Manson, where the irrigation systems suck up sawdust and wood debris from the old mill. Intakes can be set in lower water, but in the shallower part of the lake between Manson and Chelan lowering the intakes five feet vertically means extending pipes a long way horizontally.

6.5 Agricultural Sector Forecasts

Table 60 presents a summary forecast of the Lake Chelan agricultural sector. From a base of $70 million in sales, the area is expected to increase to between $86 and $92 million by the year 2010. Most of the increase in revenues is a result of improved prices rather than increased

production. As a result, employment is also projected to increase from 2,108 jobs at the present time to between 2,200 and 2,300 jobs by the year 2010.

Table 60 – Forecast of Lake Chelan Area Agriculture (1999 dollars)

		2010 Forecast		
Summary Forecast	**1998**	**Low**	**Mid**	**High**
Revenues	$ 70,200	$ 85,860	$ 90,264	$ 92,546
Jobs	2,108	2,219	2,243	2,342
Payroll	$ 25,699	$ 27,308	$ 29,800	$ 33,327
Annual Real Growth Rates (adjusted for inflation)				
Revenues		1.7%	2.1%	2.3%
Jobs		0.4%	0.5%	0.9%
Payroll		0.5%	1.2%	2.2%

Source: BST Associates

7 Future of Tourism in the Chelan Area

The following chapter provides an overview of the Pacific Northwest (PNW) tourist market and an economic forecast of tourism in the Lake Chelan area.

7.1 Overall Market Comparisons

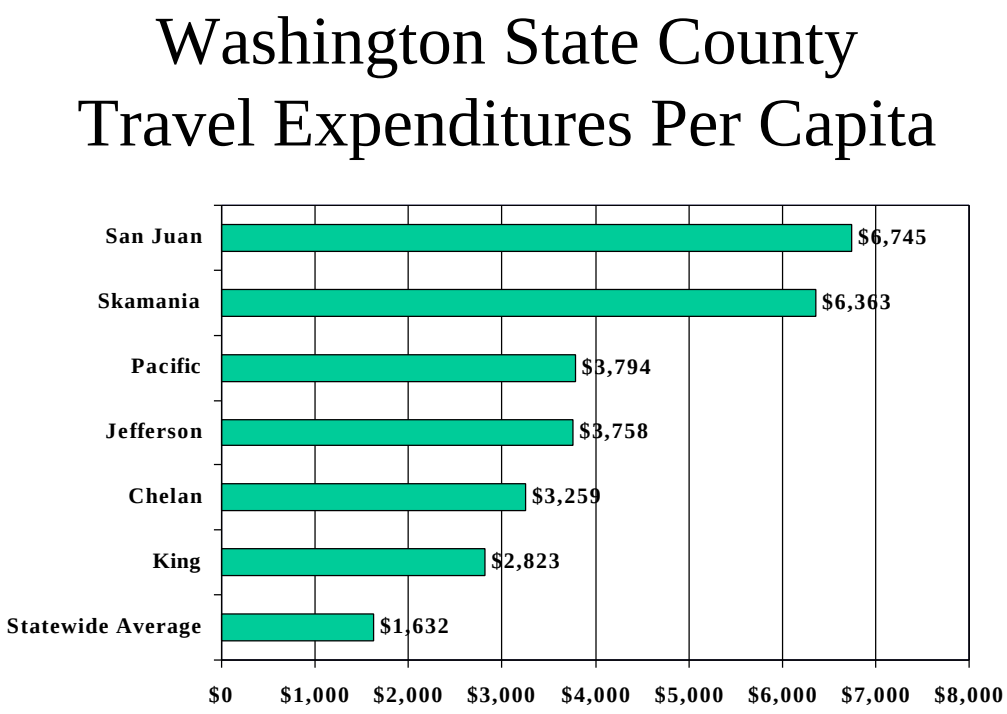
Table 61 presents a comparison of tourist expenditures, payroll and employment statistics for selected counties in the PNW Region (defined to include Washington, Oregon and Idaho). Chelan County ranked 18th among all counties in the PNW region and 8th among Washington State counties in terms of the tourist expenditures in 1997 (the last year for which data is available). The counties with largest tourism expenditures are:

1. King County in Washington (dominant with 29.2% of the market),
2. Multnomah County in Oregon (8.4% of the market),
3. Pierce County in Washington (3.1% of the market),
4. Lincoln County in Oregon, home to Newport (3.1% of the market),
5. Spokane County in Washington (3.0% of the market),
6. Snohomish County in Washington (2.9% of the market),
7. Lane County in Oregon, home to Eugene (2.5% of the market),
8. Ada County in Idaho, home to Boise (2.0% of the market),
9. Deschutes County in Oregon, home to Bend (1.9% of the market),
10. Whatcom County in Washington (1.8% of the market),
11. Clatsop County in Oregon, home to Astoria (1.6% of the market),
12. Washington County in Oregon, suburbs of Portland (1.6% of the market),
13. Clackamas County in Oregon, suburbs of Portland (1.6% of the market),
14. Yakima County in Washington (1.4% of the market),
15. Clark County in Washington, home to Vancouver (1.3% of the market),
16. Jackson County in Oregon, home to Medford and Ashland (1.3% of the market),
17. Kootenai County in Idaho, home to Coeur d'Alene (1.3% of the market), and
18. Chelan County (1.3% of the market).

Chelan County accounted for an estimated 3,651 tourist jobs with a payroll of $39.7 million in 1997. Chelan County has a market share of approximately 1.3% of the PNW tourism market. There are only three other rural counties located east of the Cascades with greater tourism expenditures than in Chelan County, including:

- Deschutes County in Oregon (Bend) ranked 9th,
- Yakima County in Washington ranked 14th, and
- Kootenai County in Idaho (Coeur d'Alene) raked 17th.

Figure 10 – Washington State County Travel Expenditures Per Capita
Source: Washington State Division of Tourism



Chelan County attracts approximately twice as much visitor business as the statewide average. On a per capita basis, Chelan County ranked fifth in 1997 among Washington State counties with respect to travel expenditures per capita, behind only San Juan, Skamania, Pacific and Jefferson counties. (See Figure 10)

Table 61 – Overall Tourism Comparison by County in Washington, Oregon and Idaho (1997) data

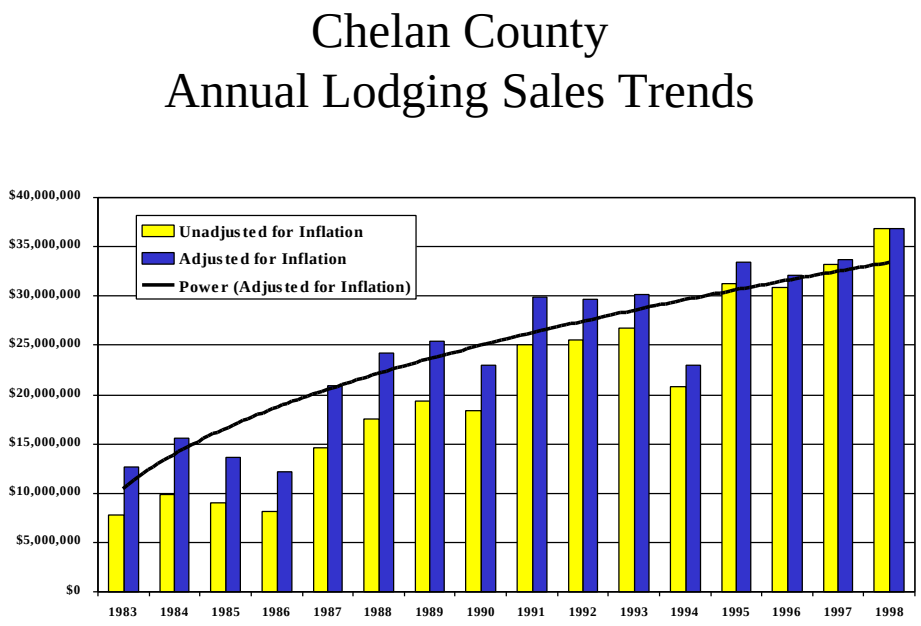
									% of Region		
Rank	**State**	**County**	**Expenditure**	**Payroll**	**Jobs**	**Exp Per Job**	**Payroll as % of Exp.**	**Average Payroll**	**Expenditure**	**Payroll**	**Jobs**
1	Washington	King	4,647,140	1,106,280	49,371	94,127	23.8%	$ 22,407	29.2%	34.0%	22.6%
2	Oregon	Multnomah	1,333,440	326,020	15,947	83,617	24.4%	$ 20,444	8.4%	10.0%	7.3%
3	Washington	Pierce	487,880	92,950	7,703	63,336	19.1%	$ 12,067	3.1%	2.9%	3.5%
4	Oregon	Lincoln	487,640	93,320	7,356	66,291	19.1%	$ 12,686	3.1%	2.9%	3.4%
5	Washington	Spokane	482,610	91,110	7,335	65,796	18.9%	$ 12,421	3.0%	2.8%	3.4%
6	Washington	Snohomish	456,760	95,960	7,001	65,242	21.0%	$ 13,707	2.9%	2.9%	3.2%
7	Oregon	Lane	396,240	80,020	6,392	61,990	20.2%	$ 12,519	2.5%	2.5%	2.9%
8	Idaho	Ada	323,696	61,112	4,694	68,960	18.9%	$ 13,019	2.0%	1.9%	2.1%
9	Oregon	Deschutes	296,500	58,550	4,852	61,109	19.7%	$ 12,067	1.9%	1.8%	2.2%
10	Washington	Whatcom	278,480	47,450	4,078	68,288	17.0%	$ 11,636	1.8%	1.5%	1.9%
11	Oregon	Clatsop	261,770	50,850	4,190	62,475	19.4%	$ 12,136	1.6%	1.6%	1.9%
12	Oregon	Washington	253,760	60,440	3,887	65,284	23.8%	$ 15,549	1.6%	1.9%	1.8%
13	Oregon	Clackamas	251,590	55,240	3,540	71,071	22.0%	$ 15,605	1.6%	1.7%	1.6%
14	Washington	Yakima	219,640	39,420	3,836	57,258	17.9%	$ 10,276	1.4%	1.2%	1.8%
15	Washington	Clark	206,010	37,900	3,040	67,766	18.4%	$ 12,467	1.3%	1.2%	1.4%
16	Oregon	Jackson	204,660	37,040	3,058	66,926	18.1%	$ 12,112	1.3%	1.1%	1.4%
17	Idaho	Kootenai	203,280	34,074	3,032	67,045	16.8%	$ 11,238	1.3%	1.0%	1.4%
18	**Washington**	**Chelan**	**202,690**	**39,680**	**3,651**	**55,516**	**19.6%**	**$ 10,868**	**1.3%**	**1.2%**	**1.7%**
	Total PNW		15,901,187	3,257,986	218,695	72,709	20.5%	$ 14,897	100.0%	100.0%	100.0%

Source: BST Associates using data from Dean Runyan Associates prepared for the Tourism Divisions of the States of Washington, Oregon and Idaho.

7.2 Chelan County Trends

Lodging sales fell substantially in 1994 as a result of the fire. However, lodging sales recovered rapidly and have improved in real terms through 1998. Between 1983 and 1998, taxable lodging sales have increased at 7.4% per after adjusting for inflation. Between 1990 and 1998, inflation adjusted growth averaged 5.5% per year. (See Figure 11)

Figure 11 – Chelan County Lodging Trends
Source: BST Associates, Washington State Dept. of Revenue



As reported by the Washington State Division of Tourism, travel expenditures in Chelan County have grown at an average annual rate of 5.7% between 1993 and 1997 (e.g., 3.4% after adjusting for inflation). The increase in sales in Chelan County was relatively consistent across all expenditure categories. However, growth in visitor spending in Washington State during this time period was more rapid at 7.4% nominally or 5.1% after adjusting for inflation. In particular, rapid growth occurred in eating/drinking establishments (21.5% per year) and recreation (15.3% per year). Chelan County has consistently represented a 2.1% to 2.3% market share of Washington State visitor expenditures. (See Table 62)

Table 62 – Chelan County Visitor Expenditure Trends

Chelan County ($1,000s)						
Category	**1993**	**1994**	**1995**	**1996**	**1997**	**CAGR 93-97**
Destination Spending	$ 161,310	$ 158,510	$ 189,370	$ 188,120	$ 201,450	5.7%
Accommodations	$33,430	$ 31,890	$39,480	$38,930	$ 42,290	6.1%
Eating, Drinking	$43,500	$ 42,820	$50,860	$50,730	$ 54,240	5.7%
Food Stores	$12,900	$ 13,190	$15,220	$14,990	$ 15,740	5.1%
Ground Transport	$19,270	$ 19,170	$22,830	$22,700	$ 24,310	6.0%
Recreation	$21,570	$ 21,340	$25,350	$25,210	$ 26,950	5.7%
Retail Sales	$30,640	$ 30,100	$35,640	$35,550	$ 37,910	5.5%
Air Transportation	$ 810	$ 790	$ 680	$ 930	$ 1,240	11.2%
County Total	$ 162,120	$ 159,300	$ 190,050	$ 189,050	$ 202,690	5.7%
Ratio Hotel to Total	20.7%	20.1%	20.8%	20.7%	21.0%	
Washington State ($ millions)						
Category	**1993**	**1994**	**1995**	**1996**	**1997**	**CAGR 93-97**
Destination Spending	$5,621	$ 6,205	$6,664	$7,058	$ 7,481	7.4%
Accommodations	$ 978	$ 1,007	$1,103	$1,192	$ 1,275	6.9%
Eating, Drinking	$ 942	$ 1,713	$1,834	$1,939	$ 2,050	21.5%
Food Stores	$ 424	$ 514	$ 545	$ 565	$ 597	8.9%
Ground Transport	$1,112	$ 775	$ 831	$ 879	$ 932	-4.3%
Recreation	$ 514	$ 759	$ 813	$ 857	$ 907	15.3%
Retail Sales	$1,651	$ 1,438	$1,537	$1,626	$ 1,720	1.0%
Air Transportation	$1,492	$ 1,503	$1,516	$1,536	$ 1,672	2.9%
County Total	$7,113	$ 7,708	$8,180	$8,595	$ 9,153	6.5%
Ratio Hotel to Total	17.4%	16.2%	16.6%	16.9%	17.0%	
Chelan % of State	**1993**	**1994**	**1995**	**1996**	**1997**	
Destination Spending	2.9%	2.6%	2.8%	2.7%	2.7%	
Accommodations	3.4%	3.2%	3.6%	3.3%	3.3%	
Eating, Drinking	4.6%	2.5%	2.8%	2.6%	2.6%	
Food Stores	3.0%	2.6%	2.8%	2.7%	2.6%	
Ground Transport	1.7%	2.5%	2.7%	2.6%	2.6%	
Recreation	4.2%	2.8%	3.1%	2.9%	3.0%	
Retail Sales	1.9%	2.1%	2.3%	2.2%	2.2%	
Air Transportation	0.1%	0.1%	0.0%	0.1%	0.1%	
County Total	2.3%	2.1%	2.3%	2.2%	2.2%	

CAGR means compound annual growth rate
Source: BST Associates; Washington State Division of Tourism, Dean Runyan & Associates

7.3 Lake Chelan Area Tourism Sector

The Lake Chelan area has an estimated tourist market of approximately $49.8 million, which accounts for 0.3% of the PNW market. This level places the Lake Chelan area in 60th place among the PNW counties (if it were treated as a separate county). (See Table 63)

Over all categories, the Chelan Valley represents an estimated 25% of the Chelan County visitor market in terms of sales (or revenues) and 27% of jobs. However, the share changes, depending on the category of visitor expenditures. (See Table 63)

With respect to lodging sales, the City of Chelan represents approximately 25% of the total lodging sales in Chelan County. In addition, lodging facilities in the Lake Chelan area also include some facilities in the unincorporated area as well as some facilities, which are not taxed. Taking these facilities into account, the Lake Chelan area accounts for an estimated 47% of the Chelan County sales.

Table 63 – Lake Chelan Area Visitor Market ($1,000s of $1998)

	Revenues	
Category	**($1,000s)**	**% of County**
Destination Spending	$49,847	24.7%
Accommodations	$19,927	47.1%
Eating, Drinking	$3,699	6.8%
Food Stores	$5,675	36.1%
Ground Transport	$1,724	7.1%
Recreation	$13,858	51.4%
Retail Sales	$4,964	13.1%
Air Transportation	$ -	0.0%
Total	$49,847	24.6%

Source: BST Associates using data from Washington State Department of Revenue, ABI and CACI

The Chelan Valley's share of Chelan County's sales in other categories is estimated as: Eating & Drinking establishments (7%), Food store sales (36%), Ground transport (7%), Recreation (51%, largely due to the Mill Bay Casino), and, Other retail sales at 13%.

Table 64 – Chelan County Taxable Lodging Sales

Year	Unincorporated Chelan County	City of Chelan	Leavenworth	Wenatchee	Chelan County Total	% County
Unadjusted for Inflation						
1983	$1,569,060	$2,116,665	$ 697,428	$ 3,347,150	$ 7,730,302	27.4%
1984	$2,106,702	$2,327,045	$ 803,821	$ 4,654,036	$ 9,891,603	23.5%
1985	$1,568,777	$2,765,808	$ 847,859	$ 3,801,820	$ 8,984,264	30.8%
1986	$1,460,286	$1,329,445	$ 905,532	$ 4,438,860	$ 8,134,123	16.3%
1987	$1,343,866	$6,906,848	$1,092,822	$ 5,238,576	$14,582,112	47.4%
1988	$2,244,796	$3,501,314	$6,072,275	$ 5,744,415	$17,562,799	19.9%
1989	$3,259,532	$4,943,340	$3,676,234	$ 7,206,541	$19,335,690	25.6%
1990	$2,373,928	$5,232,012	$4,437,881	$ 6,170,036	$18,392,261	28.4%
1991	$3,129,007	$6,675,732	$5,407,985	$ 9,577,713	$25,003,795	26.7%
1992	$3,487,141	$6,295,003	$6,153,056	$ 9,437,295	$25,551,217	24.6%
1993	$3,930,864	$6,963,436	$7,286,378	$ 8,336,488	$26,757,007	26.0%
1994	$4,951,222	Not Reported	$6,378,161	$ 9,510,445	$20,839,827	0.0%
1995	$5,399,094	$8,451,418	$7,618,238	$ 9,757,780	$31,226,530	27.1%
1996	$6,707,094	$7,495,375	$7,481,663	$ 9,237,722	$30,921,853	24.2%
1997	$7,726,675	$7,606,758	$7,677,516	$10,102,004	$33,178,116	22.9%
1998	$8,518,333	$9,326,889	$8,786,624	$10,258,369	$36,890,214	25.3%
Average						24.8%
Adjusted for inflation						
1983	$2,567,838	$3,464,020	$1,141,372	$ 5,477,765	$12,650,995	27.4%
1984	$3,305,028	$3,650,705	$1,261,047	$ 7,301,326	$15,518,106	23.5%
1985	$2,376,493	$4,189,839	$1,284,395	$ 5,759,263	$13,609,990	30.8%
1986	$2,171,776	$1,977,186	$1,346,731	$ 6,601,588	$12,097,281	16.3%
1987	$1,928,258	$9,910,353	$1,568,046	$ 7,516,619	$20,923,276	47.4%
1988	$3,092,999	$4,824,295	$8,366,701	$ 7,914,959	$24,198,954	19.9%
1989	$4,284,707	$6,498,100	$4,832,469	$ 9,473,114	$25,417,076	25.6%
1990	$2,960,599	$6,525,003	$5,534,618	$ 7,694,842	$22,937,555	28.4%
1991	$3,744,699	$7,989,312	$6,472,111	$11,462,314	$29,923,778	26.7%
1992	$4,051,347	$7,313,510	$7,148,597	$10,964,212	$29,685,306	24.6%
1993	$4,434,123	$7,854,949	$8,219,236	$ 9,403,789	$30,182,644	26.0%
1994	$5,445,675	Not Reported	$7,015,116	$10,460,205	$22,920,997	0.0%
1995	$5,774,622	$9,039,246	$8,148,115	$10,436,470	$33,398,453	27.1%
1996	$6,967,854	$7,786,782	$7,772,537	$ 9,596,869	$32,124,041	24.2%
1997	$7,847,028	$7,725,243	$7,797,103	$10,259,356	$33,694,909	22.9%
1998	$8,518,333	$9,326,889	$8,786,624	$10,258,369	$36,890,214	25.3%

Source: BST Associates using data from the Washington State Department of Revenue

The following section reviews recent trends in the major tourist sub-sectors at the City of Chelan. The source of the data is taxable retail sales provided by the Washington State Department of Revenue. It should be recognized that these data are limited to the incorporated areas in the County (e.g., the entire unincorporated area of Chelan County is reported as a single unit). Since the Chelan Valley includes a large portion of unincorporated Chelan County (e.g., primarily Manson but also Chelan Falls and Stehekin), it should be emphasized that the sales trends

presented below under-report the sales of the entire Chelan area. In addition, these trends include sales to local residents and tourists alike. Despite these caveats, the trends still serve as a good indicator for the annual growth and market share that have occurred in each sector.

7.3.1 Lodging Trends

With respect to accommodations, the City of Chelan has maintained a consistent market share of approximately 25% of total taxable sales in the County.

Table 65 – Gross Lodging Sales from Taxable Accounts

Year	City of Chelan	Chelan	% County
1989	$ 4,943,340	$19,335,690	25.6%
1990	$ 5,232,012	$18,392,261	28.4%
1991	$ 6,675,732	$25,003,795	26.7%
1992	$ 6,295,003	$25,551,217	24.6%
1993	$ 6,963,436	$26,757,007	26.0%
1994	Not Reported	$20,839,827	0.0%
1995	$ 8,451,418	$31,226,530	27.1%
1996	$ 7,495,375	$30,921,853	24.2%
1997	$ 7,606,758	$33,178,116	22.9%
1998	$ 9,326,889	$36,890,214	25.3%
CAGR 89-98			
Nominal	7.3%	7.4%	
Adjusted for Inflation	3.7%	3.9%	

Source: BST Associates, Washington State Department of Revenue

According to Table 65, the City's lodging business has grown slightly slower than the County - 3.7% in the City and 3.9% in the County between 1989 and 1998 in real terms (e.g., adjusted for inflation). Both areas exhibit the volatile trends that are common in areas dependent on weather. Virtually all of the lodging sales are to tourists.

7.3.2 Food Stores

The City of Chelan experienced a loss of market share in sales at food stores from 1989 to 1993 but this trend has been reversed and the City has increased its market share from 11.9% of county sales in 1993 to 13.6% in 1997. The County experienced a slightly faster growth rate (0.7% in the City and 1.0% in the County) between 1989 and 1997.

Chelan Valley (e.g., including sales in Chelan, Manson, Chelan Falls and Stehekin) sales at food stores are estimated to have reached $20.7 million in 1998/99. The local market accounts for approximately 73% of sales at local food stores, and this meets approximately 80% of the local demand. The rest of the local sales occur outside the Chelan Valley area (e.g., primarily in Wenatchee). Tourist expenditures account for an estimated 27% of local food store sales. (See Table 66)

Table 66 – Food Stores Taxable Sales

Year	City of Chelan	County	% of County
1989	$ 12,084,914	$ 86,591,036	14.0%
1990	$ 12,775,623	$ 95,211,076	13.4%
1991	$ 13,549,134	$ 103,095,514	13.1%
1992	$ 13,319,576	$ 107,438,361	12.4%
1993	$ 13,877,404	$ 116,789,084	11.9%
1994	$ 14,888,563	$ 124,576,941	12.0%
1995	$ 15,777,741	$ 127,310,184	12.4%
1996	$ 16,698,666	$ 126,049,624	13.2%
1997	$ 17,473,441	$ 128,464,696	13.6%
CAGR (89-97)			
Nominal	4.7%	5.1%	
Inflation	0.7%	1.0%	

Source: BST Associates, Washington State Department of Revenue

7.3.3 Ground Transportation Sales[14]

Taxable sales at service stations in the City of Chelan have generally experienced an increasing market share throughout the time period being evaluated (1989 to 1997). However, there has been a slight decrease in market share during the past two years (from 3.6% to 3.3% of County sales occurring in the City of Chelan).

However, the growth of sales at service stations in Chelan (6.5% per year adjusted for inflation) has significantly outpaced the County growth (1.8%) during this period. (See Table 67)

Table 67 – Service Station Taxable Sales

Year	City of Chelan	County	% of County
1989	$ 2,673,898	$ 115,359,334	2.3%
1990	$ 3,782,243	$ 122,189,616	3.1%
1991	$ 3,699,316	$ 126,306,663	2.9%
1992	$ 4,583,484	$ 137,340,178	3.3%
1993	$ 5,070,366	$ 149,050,247	3.4%
1994	$ 5,393,812	$ 159,819,042	3.4%
1995	$ 5,603,244	$ 156,628,895	3.6%
1996	$ 5,716,016	$ 163,246,370	3.5%
1997	$ 5,955,405	$ 181,048,164	3.3%
CAGR (89-97)			
Nominal	10.5%	5.8%	
Inflation adjusted	6.5%	1.8%	

Source: BST Associates, Washington State Department of Revenue

[14] Ground transportation includes motor fuel sales, local transportation (taxis and buses), passenger car rentals and other related sales. However, the primary source of ground transportation sales in Chelan County is sales and service at service stations. The summary presented in this section is a broad definition of ground transportation by its inclusion of auto dealers. It presents sales for the entire standard industrial category 55.

Chelan Valley (e.g., including Chelan, Manson and Chelan Falls) service stations had estimated sales of $7.6 million in 1998/99. Taking into account auto sales as well as service station sales, the local stations meet approximately 25% of the local demand. It is typical for major purchases (e.g., buying a new or used car) to occur at centralized sites in a more populated area. In Chelan County, this occurs in Wenatchee, however, sales may also leak out to Spokane, Yakima and the Central Puget Sound area.

Local sales account for approximately 73% of the sales at Chelan Valley service stations. Tourist accounts for 27% of the sales.

7.3.4 Eating & Drinking Establishments

The City of Chelan has lost sales from eating and drinking establishments, with sales peaking at $6.6 million in 1992 and falling to $5.1 in 1997. However, the County progressed in sales with increases occurring virtually every year.

As a result, the City of Chelan lost market share from a peak of 14.0% in 1991 to a low of 8.8% in 1997. Adjusting for inflation, the City's sales at these establishments declined by 3.6% per year. Additional restaurant sales are a priority economic development opportunity. (See Table 68)

Table 68 – Eating & Drinking Establishments Taxable Sales

Year	Chelan	County	% of County
1989	$ 4,936,668	$ 40,764,757	12.1%
1990	$ 5,644,703	$ 43,509,893	13.0%
1991	$ 6,566,324	$ 46,851,991	14.0%
1992	$ 6,606,015	$ 50,776,447	13.0%
1993	$ 5,195,548	$ 50,362,450	10.3%
1994	$ 5,358,089	$ 50,639,634	10.6%
1995	$ 5,241,267	$ 53,358,075	9.8%
1996	$ 5,168,649	$ 52,517,688	9.8%
1997	$ 5,114,763	$ 58,089,633	8.8%
CAGR (89-97)			
Nominal	0.4%	4.5%	
Inflation adjusted	-3.6%	0.5%	

Source: BST Associates, Washington State Department of Revenue

Chelan Valley (e.g., including Chelan, Manson and Chelan Falls) eating and drinking establishment sales were estimated at $7.9 million in 1998/99. Sales to local residents account for an estimated 53% of total sales by these firms, with 47% of sales going to visitors. Local firms account for approximately 75% of all purchases by local residents.

7.3.5 Miscellaneous Retail Stores Taxable Sales

Like sales at eating and drinking establishments, sales at miscellaneous retail stores have steadily declined in the City of Chelan. In absolute terms (e.g., unadjusted for inflation), sales fell from a peak of $7.6 million in 1994 to $5.6 million in 1997. The City's market share of these sales has fallen by half - from 10.2% in 1989 to 5.7% in 1998.

Additional sales at miscellaneous retail stores is another economic development opportunity in the Chelan Valley. (See Table 69)

Table 69 - Miscellaneous Retail Stores Taxable Sales

Year	Chelan	County	% of County
1989	$ 4,696,224	$ 46,148,151	10.2%
1990	$ 3,659,032	$ 52,373,930	7.0%
1991	$ 4,292,125	$ 58,826,058	7.3%
1992	$ 5,094,689	$ 68,539,309	7.4%
1993	$ 4,599,409	$ 81,297,003	5.7%
1994	$ 7,606,508	$ 83,497,431	9.1%
1995	$ 6,030,822	$ 79,175,905	7.6%
1996	$ 5,048,284	$ 82,117,451	6.1%
1997	$ 5,594,041	$ 97,289,586	5.7%
CAGR (89-97)			
Nominal	2.2%	9.8%	
Inflation adjusted	-1.8%	5.8%	

Source: BST Associates, Washington State Department of Revenue

Chelan Valley (e.g., including Chelan, Manson and Chelan Falls) miscellaneous retail sales were estimated at $5.9 million in 1998/99. Sales to local residents account for an estimated 91% of total sales by these firms, with 9% of sales going to visitors.

Local firms account for approximately 40% of all purchases by local residents. A large portion of miscellaneous retail sales consist of drug store sales, which occur in Wenatchee.

7.3.6 Recreation Service Taxable Sales

The City of Chelan had total sales of $3.5 million in 1997, and has maintained an approximate 10% market share of county sales for most years between 1989 and 1997. City recreation sales grew at inflation adjusted 2.4% per year during the study period, which was higher than the county as a whole (1.8%).

Chelan Valley (e.g., including Chelan, Manson and Chelan Falls) recreation sales were estimated at $27.3 million in 1998/99. Sales to county residents account for an estimated 49% of total sales by these firms, with 51% of sales by visitors.

Local firms captured approximately 100% of all purchases by local residents. (See Table 70)

Table 70 – Recreation Service Taxable Sales

Year	Chelan City'	Chelan County'	% of County
1989	$ 2,109,301	$ 22,037,562	9.6%
1990	$ 2,226,621	$ 22,540,291	9.9%
1991	$ 2,667,812	$ 24,226,611	11.0%
1992	$ 2,630,205	$ 25,360,982	10.4%
1993	$ 2,984,410	$ 28,068,311	10.6%
1994	$ 2,797,616	$ 29,999,183	9.3%
1995	$ 2,835,701	$ 32,138,081	8.8%
1996	$ 3,571,367	$ 35,504,647	10.1%
1997	$ 3,479,061	$ 34,641,181	10.0%
CAGR (89-97)			
Nominal	6.5%	5.8%	
Inflation adjusted	2.4%	1.8%	

Source: BST Associates, Washington State Department of Revenue

The operation of Mill Bay casino increased the Chelan area's sales of recreation services, representing more than 80% of sales in this category.

7.4 Tourism Sector Performance Comparisons

There are two comparisons of the performance of PNW markets engaged in the visitor business:

- growth rates at the county level between 1993 and 1997, unadjusted for inflation.
- The expenditures on other visitor sales for every $1 spent on accommodations.

7.4.1 Growth Rates

Most of the visitor sales in Chelan County have ranged between 2.7% and 3.6% during the period 1993 to 1997. During this period inflation averaged approximately 2.4%, so growth in Chelan County was slightly above the inflation rate. Sales in visitor establishments in the City of Chelan increased 4% during this time period. However, sales at lodging facilities and at eating & drinking establishments were lower than in the county as a whole.

Chelan County out-performed Okanogan County and Grays Harbor County but under-performed relative to Skamania and San Juan counties as well as the state of Washington as a whole, and Deschutes (Oregon) and Shasta (California) counties. (See Table 71)

Table 71 – Relative Growth Rates by County

	Washington State						
Category	**City of Chelan[15]**	**Chelan County**	**Okanogan**	**Skamania**	**San Juan**	**Grays Harbor**	**State**
Destination Spending	4.0%	3.3%	0.7%	6.3%	4.4%	2.4%	5.0%
Accommodations	2.2%	3.6%	1.1%	2.4%	4.1%	2.3%	4.4%
Eating, Drinking	-0.4%	3.2%	0.8%	6.5%	4.4%	2.3%	19.0%
Food Stores	5.9%	2.7%	-0.1%	11.5%	5.1%	2.9%	6.5%
Ground Transport	4.1%	3.5%	0.8%	5.3%	4.3%	2.6%	-6.8%
Recreation	3.9%	3.3%	0.8%	6.5%	4.4%	2.5%	12.8%
Retail Sales	5.0%	3.0%	0.7%	7.9%	4.6%	2.3%	-1.4%

	Other Areas		
Category	**Deschutes**	**Hood**	**Shasta**
Destination Spending	5.0%	3.3%	4.4%
Accommodations	4.4%	3.6%	4.1%
Eating, Drinking	19.0%	3.2%	4.4%
Food Stores	6.5%	2.7%	5.1%
Ground Transport	-6.8%	3.5%	4.3%
Recreation	12.8%	3.3%	4.4%
Retail Sales	-1.4%	3.0%	4.6%

Source: BST Associates, Dean Runyan Associates

7.4.2 Sales Ratios

For every dollar spent on accommodations in the Chelan Valley, there are another $1.50 spent on other goods and services. In Chelan County, as a whole, there are $3.76 spent on other goods and services ($1.26 more than in the Chelan Valley) for each dollar spent on accommodation.

Chelan County visitor spending per dollar spent on accommodations was less than Skamania, Grays Harbor, Washington State (average across all counties), Hood River, Tillamook and Wasco counties in Oregon, Shasta in California and the Kootenai Region in Idaho.

There appear to be opportunities to improve visitor expenditures in the Chelan area, especially in the areas of eating and drinking establishments, food stores and retail sales. (See Table 72)

[15] These growth rates are based upon sales to both visitors and local residents at City of Chelan businesses. These constraints should be understood when evaluating growth comparisons.

Table 72 – Ratio of Other Visitor Sales to Accommodation Sales

	Washington State						
Category	**Chelan Valley**	**Chelan County**	**Okanogan**	**Skamania**	**San Juan**	**Grays Harbor**	**State**
Destination Spending	$2.50	$ 4.76	$4.10	$5.79	$ 4.59	$5.51	$5.87
Accommodations	$1.00	$ 1.00	$1.00	$1.00	$ 1.00	$1.00	$1.00
Eating, Drinking	$0.19	$ 1.28	$0.98	$1.55	$ 1.23	$1.49	$1.61
Food Stores	$0.28	$ 0.37	$0.42	$0.63	$ 0.32	$0.52	$0.47
Ground Transport	$0.09	$ 0.57	$0.53	$0.65	$ 0.57	$0.71	$0.73
Recreation	$0.70	$ 0.64	$0.56	$0.77	$ 0.60	$0.76	$0.71
Retail Sales	$0.25	$ 0.90	$0.61	$1.20	$ 0.86	$1.02	$1.35
Air Transportation	$ -	$ 0.03	$0.04	$ -	$ -	$-	$1.31
Category	**Other Deschutes**	**Hood River**	**Tillamook**	**Wasco**	**Shasta**	**Kootenai Region**	
Destination Spending	$4.10	$ 6.08	$9.18	$6.85	$ 9.33	$5.87	
Accommodations	$1.00	$ 1.00	$1.00	$1.00	$ 1.00	$1.00	
Eating, Drinking	$0.98	$ 1.58	$2.35	$1.70	$ 1.45	$1.55	
Food Stores	$0.42	$ 0.58	$1.10	$0.79	$ 0.74	$0.28	
Ground Transport	$0.53	$ 0.90	$1.48	$1.14	$ 2.07	$1.59	
Recreation	$0.56	$ 1.15	$1.27	$0.94	$ 1.25	$0.51	
Retail Sales	$0.61	$ 0.87	$1.98	$1.29	$ 2.82	$0.94	
Air Transportation	$0.04	$ -	$ -	$ -	$ 0.39	$-	

Source: BST Associates, Dean Runyan Associates

7.5 Characteristics of Central Puget Sound Visitors

7.5.1 Domestic Trips per Household by Distance

The primary market for visitors in the Lake Chelan area is from Central Puget Sound. It is useful to evaluate the characteristics of travel by residents of this region.

Households in the Central Puget Sound area (defined as the Seattle-Bellevue-Everett Metropolitan area) generated approximately 6.5 million trips greater than 100 miles to domestic destinations in 1995. Each household made approximately 5.5 trips per year on average. The Puget Sound Regional Council (PSRC) forecasts that households in Central Puget Sound will grow at approximately 1.5% per year during the next 20 years.

Approximately 77.8% of the trips (5+ million) were in the Pacific region (Washington, Oregon and Idaho) with:

- 47.4% of the trips (3+ million) within Washington State.
- 15.6% of the trips (1+ million) to Oregon, and
- the remainder (approximately 900,000 trips) were to California,
- in addition, approximately 149,000 trips were made to Idaho.

Approximately half of the trips in Washington State (1.7+ million trips) were between 300 and 499 miles round trip, which falls within the sphere of influence of Lake Chelan. (See Table 73)

Table 73 - Household Trips by Residents of Central Puget Sound (Thousands of Trips)

Household Trip Characteristics	Total	Pacific	Washington	Oregon	Idaho
Total	6,481	5,043	3,070	1,012	149
Percent	100.0%	77.8%	47.4%	15.6%	2.3%
Round-trip distance					
Less than 300 miles	1,332	1,333	1,315	18	
300 to 499 miles	2,156	2,156	1,510	646	
500 to 999 miles	700	562	233	329	119
1000 to 1999 miles	931	603	4	16	27
2000 miles or more	1,362	389	8	3	3
Mean (miles)	1,280	737	344	496	857
Median (miles)	444	372	304	398	722
Round-trip distance					
Less than 300 miles	20.6%	26.4%	42.8%	1.8%	0.0%
300 to 499 miles	33.3%	42.8%	49.2%	63.8%	0.0%
500 to 999 miles	10.8%	11.1%	7.6%	32.5%	79.9%
1000 to 1999 miles	14.4%	12.0%	0.1%	1.6%	18.1%
2000 miles or more	21.0%	7.7%	0.3%	0.3%	2.0%

Source: BST Associates using data from the 1995 American travel Survey.

7.5.2 Time of Year

There is a fair amount of variability regarding when the trip is made. Overall, households in the greater Seattle area made nearly 30% of the trips in the third quarter, nearly 28% in the second quarter, and 24% in the fourth quarter and the remainder in the first quarter. However, more trips within the state occurred second quarter (33.8%) followed closely by the third quarter (29.5%). (See Table 74)

7.5.3 Purpose of Trip

Nearly half of the trips in Washington State were primarily for leisure activities. This was more than for any other destination. (See Table 75)

Table 74 - Household Trips by Time of Year (1,000s)

Household Trip Characteristics	Total	Pacific	Washington	Oregon	Idaho
Calendar Year					
1st Quarter	1,207	930	588	181	41
2nd Quarter	1,807	1,487	1,039	208	35
3rd Quarter	1,931	1,487	906	319	41
4th Quarter	1,535	1,139	537	304	32
Calendar Year					
1st Quarter	18.6%	18.4%	19.2%	17.9%	27.5%
2nd Quarter	27.9%	29.5%	33.8%	20.6%	23.5%
3rd Quarter	29.8%	29.5%	29.5%	31.5%	27.5%
4th Quarter	23.7%	22.6%	17.5%	30.0%	21.5%

Source: BST Associates using data from the 1995 American travel Survey.

Table 75 - Household Trips by Main Purpose of Trip (1,000s)

Household Trip Characteristics	Total	Pacific	Washington	Oregon	Idaho
Main Purpose of Trip					
Business		1,370	679	337	44
Pleasure		3,261	2,117	605	101
Visit friends or relatives		1,256	631	329	73
Leisure		2,006	1,485	276	28
Other	70	411	274	69	5
Main Purpose of Trip					
Business	28.8%	27.2%	22.1%	33.3%	29.5%
Pleasure	7.3%	64.7%	69.0%	59.8%	67.8%
Visit friends or relatives	26.2%	24.9%	20.6%	32.5%	49.0%
Leisure	36.6%	39.8%	48.4%	27.3%	18.8%
Other	1.1%	8.1%	8.9%	6.8%	3.4%

Source: BST Associates using data from the 1995 American travel Survey.

7.5.4 Party Size and Characteristics

More than two-thirds of the trips in Washington State are by adults. Nearly half of the trips in Washington State were primarily for leisure activities. Approximately 29% of the trips are by adults with children under 18 years of age. The school age population is considered a mainstay of the Lake Chelan area. However, the limitations of summer break time and the relative size of the school age population should be considered in developing an economic development strategy for the Lake Chelan area. (See Table 76)

Table 76 - Household Trips by Travel Party Type and Size

Household Trip Characteristics	Total	Pacific	Washington	Oregon	Idaho
Travel party type and size					
1+ adults, no children under 18	4,898	3,649	2,090	800	110
1+ adult, 1+ children under 18	1,296	1,186	881	172	23
No adult, 1+ children under 18	287	207	100	40	17
Mean travel party size	1.7	1.8	2.0	1.6	1.6
Travel party type and size					
1+ adults, no children under 18	75.6%	72.4%	68.1%	79.1%	73.8%
1+ adult, 1+ children under 18	20.0%	23.5%	28.7%	17.0%	15.4%
No adult, 1+ children under 18	4.4%	4.1%	3.3%	4.0%	11.4%

Source: BST Associates using data from the 1995 American travel Survey.

7.5.5 Nights away from Home

Approximately 60% of the trips in Washington State are 1 to 3 nights, 19% 4 to 7 nights and 17% are day-trips. As discussed below, there is a definite trends toward more frequent but shorter duration travel. (See Table 77)

Table 77 - Household Trips by Nights away from Home (1,000s)

Household Trip Characteristics	Total	Pacific	Washington	Oregon	Idaho
Nights away from home					
None	814		527	153	17
1 to 3 nights	3,468		1,851	667	71
4 to 7 nights	1,517		578	146	41
8 nights or more	682		114	46	21
Mean, excluding none (nights)	4.5	4.0	3.1	2.9	4.0
Nights away from home					
None	12.6%	14.7%	17.2%	15.1%	11.4%
1 to 3 nights	53.5%	57.5%	60.3%	65.9%	47.7%
4 to 7 nights	23.4%	19.9%	18.8%	14.4%	27.5%
8 nights or more	10.5%	7.9%	3.7%	4.5%	14.1%

Source: BST Associates using data from the 1995 American travel Survey.

7.5.6 Type of Lodging at Destination

Most trips in Washington State are at the house of a friend or relative (37%), followed by 29% other (Campground, RV Park, rented or owned cabin) and 15.5% at a hotel, motel or resort. (See Table 78)

Table 78 - Household Trips by Type of Lodging at Destination (1,000s)

Household Trip Characteristics	Total	Pacific	Washington	Oregon	Idaho
Type of lodging at destination					
One or more nights at destination	5,591		2,524	846	132
Friend's or relative's home	2,283		1,151	329	78
Hotel, motel, or resort	2,104		475	443	47
Rented cabin, condo or vacation home	155				
Owned cabin, trailer or vacation home	523				
Camper, trailer, recreational vehicle, tent	190				
Other	335		897	74	8
Type of lodging at destination					
One or more nights at destination	86.3%	84.3%	82.2%	83.6%	88.6%
Friend's or relative's home	35.2%	36.1%	37.5%	32.5%	52.3%
Hotel, motel, or resort	32.5%	26.4%	15.5%	43.8%	31.5%
Rented cabin, condo or vacation home	2.4%	NA	NA	NA	NA
Owned cabin, trailer or vacation home	8.1%	NA	NA	NA	NA
Camper, trailer, recreational vehicle, tent	2.9%	NA	NA	NA	NA
Other	5.2%	21.9%	29.2%	7.3%	5.4%

Source: BST Associates using data from the 1995 American travel Survey.

7.5.7 Projected Growth in the Central Puget Sound Area

According to the Puget Sound Regional Council (PSRC), the Central Puget Sound area (defined to include King, Snohomish, Pierce and Kitsap counties) will continue to experience relatively rapid growth. (See Table 79)

Table 79 – Central Puget Sound Growth

Year	Population	Households	Pers/Hhld	Employment
1970	1,938,976	629,468	3.1	740,927
1980	2,240,264	845,012	2.7	1,033,407
1990	2,748,897	1,071,343	2.6	1,445,243
1997	3,110,633	1,212,290	2.6	1,661,462
2000	3,270,295	1,337,775	2.4	1,799,208
2010	3,804,507	1,591,646	2.4	2,075,592
2020	4,265,694	1,787,152	2.4	2,261,100
Compound Annual Growth Rate				
70 to 80	1.5%	3.0%	-1.5%	3.4%
80 to 90	2.1%	2.4%	-0.3%	3.4%
90 to 97	1.8%	1.8%	0.0%	2.0%
97 to 00	1.7%	3.3%	-1.6%	2.7%
00 to 10	1.5%	1.8%	-0.2%	1.4%
10 to 20	1.2%	1.2%	0.0%	0.9%
97 to 20	1.4%	1.7%	-0.3%	1.3%

Source: BST Associates using data from Puget Sound Regional Council

Between 1970 and 1997, the area's population increased from 1.9 million to 3.1 million people, averaging growth of 1.5% or better each decade. Employment increased evenly more rapidly, from 740,000 in 1970 to 1.6 million in 1997, or at an average annual growth rate of 3%.

Future population, household and employment growth is expected to average 1.4%, 1.7% and 1.3% respectively between 1997 and the year 2020.

7.6 Market Trends

Several travel market trends are apparent in the North American domestic travel market, which will have implications for the Lake Chelan area. These trends are reviewed in the following section[16].

7.6.1 Overall Trends

According to the annual *Better Homes & Gardens* vacation survey, conducted by the U.S. Travel Data Center, a record 97.3 million Americans took a family trip in 1997, an increase of 4% from 1996, and the fourth consecutive annual increase. More than one-third of families spent more on vacations in 1997 than the previous year. The average vacationing family (defined as any two or more relatives traveling together) spent $1,418 on 'long vacations' and $657 on weekend getaways. The most frequent reason for travel was 'being together as a family.' It ranked higher than 'getting away from work stress,' 'having new experiences,' and 'learning about new places and people.'

The *Better Homes & Gardens* survey found generational differences in travel. Generation X takes more last-minute trips. Impulse vacations account for the bulk of travel for 19- to 31 -year-olds, with 58% waiting until the month of travel to plan; 11% do not decide until the day they leave.

One-third of adults say they saved money for vacations in 1998, an increase from 24% in 1992. According to the *Yankelovich Monitor* and USA *Today* (January 23, 1998), the factors most people say are important when considering possible vacations are as follows:

- Time with family: 47%
- New places and things to do: 42%
- Chance to relax/do nothing: 42%
- Time with friends: 35%
- Catch up at home: 29%
- Time with kids: 29%
- Visit out-of-town friends: 28%
- Learn something new: 27%
- Reconnect with spouse: 27%

What Americans want out of vacation also continues to evolve. Good value, exciting entertainment, spending time with one's family and escaping the stress of home and work are all

[16] This sections draws upon The 1999 Travel and Tourism Market Research Handbook, by Richard K. Miller & Associates.

important motivators in today's vacation decisions. According to the Travel Industry Association and USA *Today* (June 22, 1998), the primary vacation purposes are as follows:

- Entertainment: 34%
- Visit friends/relatives: 34%
- Outdoor recreation: 21%
- Business: 8%
- Personal/other: 3%

According to Travel Industry Association of America and USA Today (September 26,1997), weekend trips increased from 42% of all travel in 1986 to 52% in 1996. Types of travel by Americans in 1996 were as follows:

- Weekend trip: 52%
- Mid-week trip: 19%
- Long trip: 18%
- Day trips: 11%

According Aragon Consulting Group and USA Today (July 22, 1997), the following is what adults say they do most often with their vacation time:

- Domestic travel: 62%
- Relax at home: 27%
- International travel: 20%
- Complete home projects: 17%
- Hiking/camping/fishing: 6%

Profs. Geoffrey Godbey (Pennsylvania State University) and John P. Robinson (University of Maryland), in their book Time for Life, argue Americans have more free time than they did in the 1960s. People just feel rushed. Most free time is broken up into tiny blocks scattered across the workweek; 20 minutes here and 45 minutes there. This provides time to channel surf, but not enough for deep relaxation and leisure of the sort that people enjoy during vacations.

Where both parties in a marriage or relationship work, coordinating free time is a challenge. According to University of Pennsylvania sociologist, women and men alike feel squeezed because they are less likely to be able to rely on someone at home devoted exclusively to family concerns. Federal surveys show that couples overall were employed ten hours more a week in 1997 than in 1970. This increase is mainly the result of a surge in two-career families. From 1970 to 1997, the proportion of dual-earner households increased to 60% from 36%; marriages with the male as the sole earner declined from 51 % to 26%.

Americans have also started combining business with leisure, as indicated by the growth in conventions. Most conventions combine activities, such as golf or tennis, with business and work. In May 1997, the leisure component of the *American Demographics* Index of well-being

increased 10%, to 104.15. The average weekly number of non-work hours increased to 126.0 from 125.8 in April 1997. An ever-growing number of Americans would like to devote less time to work and more time to family, community, and fun. According to a U.S. News/Bozell Worldwide poll conducted by KRD Research and Consulting, 49% of Americans believe society puts too much emphasis on work and not enough on leisure, compared to 28% in a 1986 study by Opinion Research Corporation.

Americans are taking it easy more often, and doing it closer to home, increasing the number of weekend getaways by 70% between 1986 and 1996. In a survey for Embassy Suites, Wiese Research reported 86% of adults took a weekend getaway trip in 1996. They engaged in the following activities to relax on a weekend getaway:

- Dining out: 97%
- Shopping: 75%
- Outdoor recreation: 72%
- Sleep late: 65%
- Go to movie/theater: 52%
- Read: 39%

In its 1997 Weekend Travel Report, the Travel Industry Association of America found Americans took 604 million weekend trips in 1996, compared with 356.8 million a decade earlier. They are also staying closer to home; the survey found the average weekend trip included just over 700 miles of travel, compared with 986 miles for non-weekend trips.

"Today couples are working longer and harder. Often their free time is dominated with kids, chores, and outside activities. Quick vacations have become the perfect way to get away from their daily hassles and rejuvenate their lives at the same time." [William S. Norman, President and C.E.O. Travel Industry Association of America *PRNewswire,* 2/9/98]

In the 1990s, for the first time, more than half of all vacation trips in the United States have consisted of weekend travel of no more than five nights away from home. In both 1996 and 1995, the figure was 52%, up sharply from 42% in 1986. The dramatic shift in American's travel habits grew out of the hectic pace of the downsized American workplace. It has forced the tourism industry to revamp its marketing and pricing structure. Hotels, resorts, historical sites and entire cities have scrambled to accommodate larger numbers of people staying for shorter stretches. "The trips are like extreme sports. It's not exactly what you'd call a traditional vacation." [Daniel Fesenlaier, University of Illinois Tourism Laboratory, *The Wall Street Journal,* 6/12/98]

The long weekend is even giving way to the 24-hour vacation. Pushed by new airline restrictions and the even-longer workweek, a new breed of American travelers is taking super quick vacations that redefine the word 'leisure.' *The Wall Street Journal* calls them deadline tourists. In the time it takes most people to visit a museum, these clock beaters are flying across the country for bogglingly brief respites that range from a whirlwind tour of Seattle to an all-night binge through Manhattan.

To some extent, experts say, this is inevitable in today's era of hurry-up travel. The overnight jaunt has also picked up speed recently because the travel industry, led by the airlines, is pushing the trend with one-day specials. In some cases, quickie vacations have become the only way to find a bargain. Where they once restricted discount fares to Saturday-night stays, for the 1998 Memorial Day weekend the airlines limited them to a new 36-hour window. Many of the industry's discounts sold over the Web have mad-dash restrictions like this too. The market extends to all sorts of travel. Cruise companies have weekend-long 'sampler' cruises. Hotels cater to short stays with a number of less-than-weekend packages, which include things like theater tickets, dinner and a ride to the airport with a one-night stay.

Psychologists say American's need to get away more frequently is a result of the need to balance job- and financial-related stress, and the monotony of extended periods at computer terminals. While people are working harder to keep their place in the world economy, they are seeking out fun in compensatory doses. According to KRC Research for *US. News* and USA Today, Americans, on average, expect to retire by age 62 and live to 84. The percent who plan to spend more (not the same or less) on these things in retirement is as follows:

- Travel: 66%
- Eating out: 37%
- Gifts for family: 33%
- Housing: 15%
- Clothing: 11%
- Sports Equipment: 9%

7.6.2 U.S. Water Recreation Trends & Forecasts

A recent report entitled “Draft Report of the National Recreation Lakes Study Commission” was presented in June 1999, documenting the results of the National Recreation Lakes Study Commission. As a part of this effort, the U.S. Forest Service’s Regional Demand and Supply Projections for outdoor recreation were utilized to illustrate the expected forms of recreation at federally controlled lakes over the next four decades. These activities are ranked in Table 80, based upon the rate of expected growth in the activity. For example, sailing and rafting are expected to grow the fastest while boating, swimming, and fishing are expected to grow the slowest of the activities studied.

Table 80 – Activity and Projected Participation in Recreational Activities (Number of Trips in Millions)

Activity	1987	2000	2010	2020	2030	2040	CAGR 00-40
Sailing	35.0	50.1	65.8	83.0	102.6	117.3	2.1%
Rafting	9.0	9.9	12.2	14.8	19.4	23.0	2.1%
Hiking	91.1	119.3	146.7	180.4	222.3	266.9	2.0%
Jogging	23.7	111.3	136.4	164.9	195.9	219.3	1.7%
Photography	42.1	51.8	60.2	69.5	79.2	86.3	1.3%
Picnicking	262.1	233.1	306.7	330.2	356.5	377.4	1.2%
Camping	60.5	72.6	82.9	93.8	104.7	112.5	1.1%
Wildlife	69.5	80.6	91.0	101.4	112.6	121.0	1.0%
Canoeing	39.7	44.9	50.0	55.6	62.3	67.0	1.0%
Water-skiing	107.4	119.2	130.0	140.7	151.4	159.0	0.7%
Swimming	233.7	250.6	263.0	279.0	296.0	308.0	0.5%
Fishing	35.6	37.4	39.3	41.2	43.3	45.4	0.5%
Boating	219.4	232.6	243.5	256.7	270.0	278.7	0.5%
CAGR means average annual growth rate							

Source: U.S. Forest Service

7.6.3 Washington State Visitor Survey Results

As shown in Table 81, water-based recreation activities are very important to visitors in Washington state.

Table 81 – Survey Responses of Washington State Visitors

Activities	Washington	out-of-state
Visited a park	72	74
Visited historical site	67	68
Hiked	53	51
Visited friends or relatives	46	45
Attended fair, festival etc.	67	26
Went boating, canoeing etc.	**44**	**26**
Visited a zoo, aquarium etc.	34	27
Camped	53	18
Visited a winery	27	13
Fished	**32**	**6**
Bicycled	28	7
Visited a casino	16	8
Golfed	12	4

Source: Washington State Division of Tourism

Developing a variety of activities that are both water-based and non-water based is very important in the Lake Chelan area, North-Central Washington State and the Cascadia Region (British Columbia, Alberta, Washington, Idaho and Oregon). More visitors are becoming interested in other forms of outdoor recreation as well cultural and historical events and activities.

7.6.4 Conclusions

These trends toward more frequent/shorter duration travel combined with increased outdoor recreation are favorable for the Lake Chelan area, especially for the Central Puget Sound market.

7.7 Forecast of Tourist Industry

This section presents a summary forecast for the visitor industry in the Chelan Valley. Under the forecast, visitor expenditures are expected to increase in real terms from $49.8 million in sales in 1998 to between $53.7 and $77.5 million in 2010. Jobs are expected to increase from 1,000 in 1998 to between 1,082 and 1,378 in 2010 under the low and high range forecast scenarios. Payrolls are expected to increase from $13 million to between $14 and $20 million by the year 2010.

As described in a previous section, Chelan County visitor expenditures increased by a real rate of growth of 1.6% per year between 1993 and 1997. The mid-forecast projects growth at slightly above this level. (See Table 82)

Table 82 – Visitor Forecast for Lake Chelan Area ($1,000s of 1998 dollars)

		2010		
Summary Forecast	**1998**	**Low**	**Mid**	**High**
Revenues	$ 49,847	$ 53,716	$ 63,875	$ 77,513
Jobs	1,000	1,082	1,237	1,378
Payroll	$ 13,242	$ 14,125	$ 17,135	$ 20,364
Annual Real Growth Rates - Adjusted for Inflation				
Revenues		0.6%	2.1%	3.7%
Jobs		0.7%	1.8%	2.7%
Payroll		0.5%	2.2%	3.7%

Source: BST Associates

The low forecast scenario presents a pessimistic assessment of the future activity of the Chelan Valley, with growth slightly above inflation. It is essentially a no-growth scenario.

The high growth forecast assumes that the Chelan Valley improves its market share of the PNW visitor market and expands its sales in eating & drinking establishments, food stores, and retail sales. This scenario also assumes that the shoulder season occupancy and average room rates will improve from current conditions.

8 Water Level Impacts

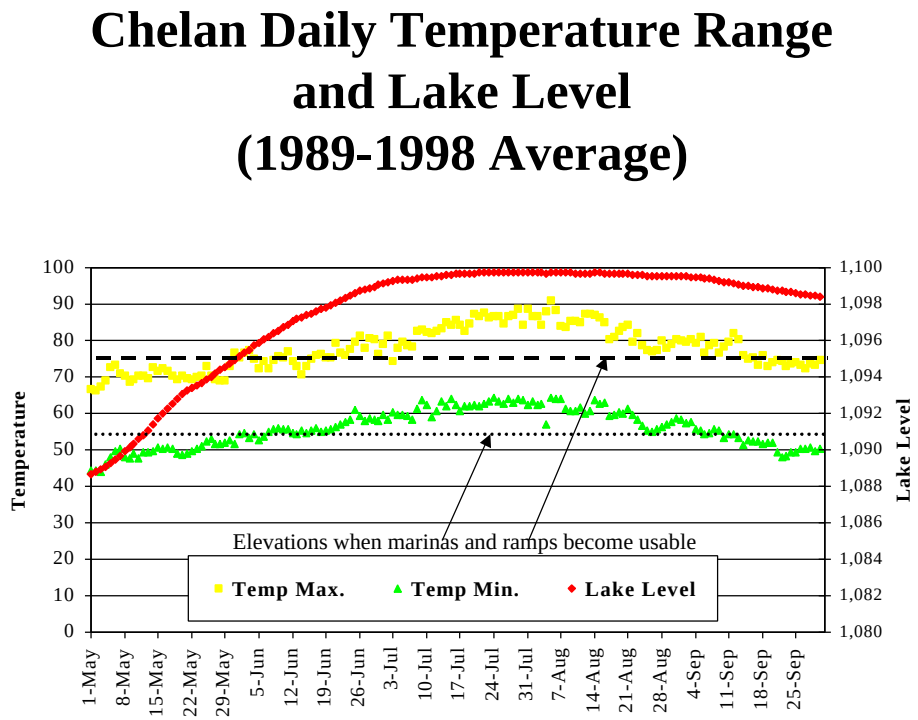
This chapter provides an estimate the benefits and costs associated with proposed changes in lake levels.

8.1 Current Water Level Characteristics

8.1.1 Patterns from May through September

Figure 12 provides the average temperature and lake level for each day from May 1st through September 30th, based upon daily ambient air temperatures recorded by the Lake Chelan Boat Company and lake level elevations provided by the Chelan PUD for the period 1989 through 1998.

Figure 12 – Chelan Daily Temperature Range and Lake Level (1989-1998 Average)
Source: Chelan Boat Company and Chelan PUD

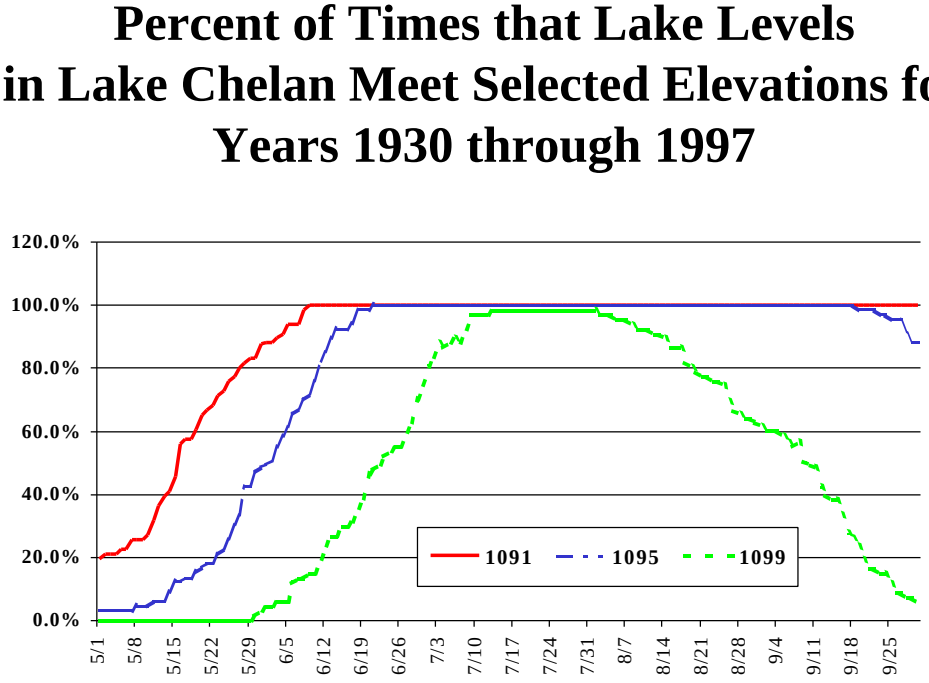


During the month of May temperatures are generally quite pleasant at Lake Chelan. At the beginning of the month the average high temperature is just under 70 degrees, and by the end of the first week average 70 degrees. The high temperature hold steady at 70 degrees until the last week of May and the Memorial Day Weekend, when it starts to climb toward the mid-70's.

Lake level is low at the beginning of May. On average, at the beginning of May the lake elevation averages 1,088 feet, which is 3 to 7 feet below the elevations required to achieve partial and full use of most boat ramps, marinas and fixed docks. During the month of May the lake level steadily rises approximately 1.5 feet per week, reaching 1,090 feet May 8, 1,091.5 feet May 15, 1,093 feet May 22, and 1,094.5 feet on May 29. On Memorial Day, the final Monday of May, Lake Chelan is generally 5 to 6 feet under maximum elevation but most boat ramps and marinas are usable on the average year.

However, as noted in chapter 3 above, and described in Figure 13, under previous years elevation 1,091 is only reached 75% of the time by May 22nd and 100% of the time by June 5th. Likewise, elevation 1,095 is reached 75% by June 5th and 1005 of the time by June 22nd.

Figure 13 - Percent of Times that Lake Levels in Lake Chelan Meet Selected Elevations for Years 1930 through 1997
Source: Chelan PUD



8.2 Lake Level Issues

This section evaluates and quantifies the impact of the proposed changes in lake levels.

8.2.1 Methodology

The lake levels under consideration by the Lake Level Committee focus on the months from May through September. The recommended levels being considered by the Lake Level Committee seek higher lake levels in May and early June.

None of the existing or proposed lake levels create any known difficulties for water intake systems during the months from May through September. Most of these water intake facilities have been designed to operate at an elevation of 1,079 feet. Although some operate closer to an elevation of 1,090 feet, lake levels are generally above this level between May and October.

Current lake levels impact tourism in the month of May, when lake facilities may be inoperable, depending upon:

- the day (especially earlier in the month of May), and,
- weather conditions (during poor weather conditions such as those experienced in 1999, lake levels were below the target goals well into June).

The economic impact of existing lake levels on the tourism industry is estimated below by comparing the percentage of revenue generated in each month in the Chelan area with the revenue generated at competitive facilities. The hypothesis assumes that if Chelan has a lower percentage of revenue than competitive facilities during the month of May, some or all of this differential may be due to lake levels.

Several case studies were prepared to compare monthly revenue distribution. The following case studies are intended to illustrate the level of lodging and other activity that occurs in competitive or related facilities.

8.2.2 Lake Chelan Lodging Survey

Initial attempts to quantify the monthly distribution of revenues at Lake Chelan were based upon Washington State Department of Revenue lodging tax receipts. However, these data did not compare well with the Chamber of Commerce business survey results. As a result, a second survey was undertaken with Lake Chelan lodging providers in order to fully understand the monthly distribution of lodging revenues. We received responses from 17 lodging providers[17] in the Lake Chelan Basin, including:

- A Quail's Roost Inn
- Apple Country Bed & Breakfast
- Bains Lake Chelan Shores Condo

[17] We are very grateful for the additional assistance provided by the Lake Chelan lodging industry.

- Best Western Lakeside Lodge
- Campbell's Resort
- Caravel Resort
- Chelan Vacation Rentals/Resort Systems
- City of Chelan Lakeshore RV Park
- Holden Village Bed & Breakfast
- Inn Above the Lake
- Midtowner Motel
- Mom's Montlake Motel
- Resort Vacation Rentals
- Silver Bay Inn Resort
- Stehekin Lindal Cedar Home
- Wapato Point Village Inn Motel
- Watson's Harverene Resort Inc.

The results of the survey are presented below.

8.2.2.1 Occupancy Rates

Average occupancy rates are presented in Table 83 on an unweighted basis. Occupancy rates are below 20% from November through March. In April, occupancy increases to 30%, then to 43% in May and 56% in June before reaching 89% in August, which is nearly full capacity. It is noteworthy that occupancy rates in May are lower than those in both September and October and that September occupancy is consistently greater than that occurring in June.

Table 83 – Average Monthly Occupancy Rates in Lake Chelan Basin for 1997 through September 1999 (unweighted).

Month	1997	1998	1999	Average
January	8.8%	7.5%	6.3%	7.5%
February	13.5%	14.8%	11.0%	13.1%
March	12.8%	14.8%	16.0%	14.5%
April	29.7%	30.5%	30.0%	30.1%
May	44.1%	44.4%	41.6%	43.4%
June	53.4%	55.9%	58.3%	55.9%
July	79.3%	84.8%	83.5%	82.5%
August	93.5%	84.5%	88.6%	88.9%
September	60.9%	59.1%	59.8%	59.9%
October	38.9%	48.2%		43.5%
November	10.5%	21.3%		15.9%
December	7.5%	8.1%		7.8%

Source: BST Associates, second Chelan PUD Survey.

8.2.2.2 Average Room Rates

Average room rates are $75 or less from October through April. In May, rates increase to $81 per night on average and then increase steadily to $115 to $116 per room per night in July and August. In September, rates stay relatively high at $94 per night. (See Table 84)

Table 84 – Average Room Rates in Lake Chelan Basin for 1997 through September 1999 (unweighted)

Month	1997	1998	1999	Average
January	$ 65	$ 68	$ 64	$ 66
February	$ 67	$ 68	$ 65	$ 66
March	$ 67	$ 65	$ 65	$ 66
April	$ 67	$ 66	$ 67	$ 67
May	$ 80	$ 81	$ 82	$ 81
June	$ 101	$ 103	$ 105	$ 103
July	$ 114	$ 114	$ 119	$ 115
August	$ 115	$ 114	$ 119	$ 116
September	$ 94	$ 95	$ 95	$ 94
October	$ 80	$ 70		$ 75
November	$ 65	$ 59		$ 62
December	$ 66	$ 63		$ 64

Source: BST Associates, second Chelan PUD Survey.

8.2.2.3 Average Room Rates

May revenues for the Lake Chelan area were estimated to be 8.0% in the draft report, which is slightly above the corrected total of 7.9%. September revenues were previously estimated to represent 9.2% of annual revenues. However, September represents 12.1% of annual revenues, nearly equaling June receipts, according to the more recent and more thorough lodging industry survey.

The prior survey estimated June through August as representing 52.1% of total Chelan Basin lodging revenues. The new survey estimates that June through August accounts for 62.1% of annual revenues. The period June through September represents 75% of lodging revenues.

This current peaking effect has two consequences. First, lodging operators and other businesses that receive a majority of their income must meet nearly all revenue requirements over a four month period. The ability to bring on additional lodging capacity as well as to create more varied tourist businesses (retail, restaurant and services) during this time period is very constrained. Second, the need to spread the shoulders of the tourist season are uni-directional. The fall season is reasonably well established but the spring season and early summer (e.g., May and early June) are under-utilized. (See Table 85)

Table 85 – Average Monthly Revenue in Lake Chelan Basin for 1997 through September 1999 (unweighted)

Month	1997	1998	1999	Average
January	0.9%	0.6%	0.4%	0.6%
February	1.4%	1.9%	1.6%	1.6%
March	2.0%	2.2%	1.8%	2.0%
April	4.3%	4.5%	4.4%	4.4%
May	6.8%	7.3%	9.5%	7.9%
June	12.1%	12.7%	13.0%	12.7%
July	21.7%	26.1%	24.5%	24.2%
August	29.5%	24.2%	24.8%	26.3%
September	13.1%	12.8%	10.3%	12.1%
October	5.7%	5.4%		5.6%
November	2.0%	1.7%		1.8%
December	0.7%	0.7%		0.7%

Source: BST Associates, second Chelan PUD Survey.

8.2.2.4 Lake Level Committee Recommendations

Ten of the survey respondents, representing 59% of survey respondents, agree with the Lake Level Committee's recommendation. One firm disagreed to it and six did not answer. (See Table 86)

Table 86 – Do You Agree with the Lake Level Committee's Recommendations

Response	Number	Percent
Yes	10	58.8%
No	1	5.9%
No Answer	6	35.3%
Total	17	

Source: BST Associates, second Chelan PUD Survey.

Survey Respondents were also asked to describe how implementing the Lake Level Committee's Recommendations would impact their business.

- "Raising the lake earlier in the spring and early summer would have a beneficial impact on our business because all or most of the lake infrastructure is designed around the 1100' high water mark, raising the lake earlier would improve access and encourage"
- "For me personally it would probably not have much impact. I only work weekends - do all the bookings and when we are busy with orchard, etc. - do not work all of the weekends in May, June or Sept. However, it is of great importance to the resort business and is essential for their survival."
- "If the water level was lower between Memorial Day & end of Sept it would lower our revenue. Dropping the level at other times of the year would have no effect. Most of our customers depend upon the lake for recreation & if the level is lower between Memorial Day & the end of Sept we will have fewer renters."

- "My business will increase due to higher occupancy rates and higher rates charged.
- "We are a summer tourist resort. We rely on the lake level for our beaches, moorage and boat gas sales. When the water level is down more than 4' we can not pump boat gas. When the lake level is down more than 3' we cannot use all of our 40 moorage spaces and our beaches are out of the water for swimming."
- "Negligible impact"
- "Very important, the major portion of our income is during the summer (full lake level) months."
- "Achieving the lake level committee's recommendations would come close to assuring water in the city marina in May and June. The elevations of May/June '99 were disastrous for boater access for launching and moorage. The impact of guaranteed lake levels and service available to the boating public would definitely enhance the city and marketing committee's ability to impact of economy in a positive manner. Visual impact of low pool in late spring & early summer has definite detrimental impact to city visitors."
- "Might help with June business since the lake would have a chance to get "warmer". I have many possible visitors say they don't want to come to Chelan until July when the lake is warmer. Therefore, it might help with the slow month of June after a few years of education. I'm not sure how to get the word out after years of low lake levels in the spring."
- "Higher lake levels in May & June will greatly increase our occupancy earlier in the season. We would actually like to see the level up before Memorial Day weekend."

Additional comments included:

- "Another concern has been the huge amount of logs & branches on the west beach of Lakeside Park which is never picked up and left for the duration of summer. Is this a fisheries issue?"
- "B&B open May 1 - Sept 30 - working B & B only on Friday & Saturday with additional days in busy months of July & August reflected in % of over 100% occupancy."
- "I think the customer views the lake as our "product". If the lake level is down some customers think our "product" is damaged and must be discounted. The sooner the lake is at "summer level" the sooner the rates and occupancy will go up."
- "The City of Chelan needs improved marina and beach facility to enhance the vacation experience of those people who utilize public facilities. We need to satisfy those people who are already in town and rely more on their word of mouth advertising that they take home to family and friends as a result of their experience. Additionally there needs to be more recreational amenities and facilities to provide activities for those people to participate in. Our natural resources need to be supplemented with family oriented recreation facilities."
- "The lake is the attraction that brings people to the area, but we still need something for them to do when they get here. We need another boat ramp on the lower end of the lake that is useable at low water. We need other activities in April, May, June, Sept. & October when the weather is good but the lake use is limited. Another golf course is a must in the area and not just an exclusive resort course. A reasonable priced public course would probably serve the area as well or better. A baseball sports complex would be a great addition to the

community and would also attract May & June guests. Has anyone looked into the impact of a 20-30 lane bowling alley to handle tournaments. As funny as it may sound, it is a year round activity and tournaments are usually a couple of days."

- "The PUD for over 60 years has taken responsibility to keep the debris cleared at the headwaters of Lake Chelan at the mouth of the Stehekin River. This is a benefit for boaters, fishing, and scenic purposes. The flood of '95 brought with it an immense a mount of debris which now catches more debris and is creating a problem. Children play on these unsafe log jams, boaters lose their props, and the absolutely fabulous lake view which is used to advertise Chelan County and the State is marred. The PUD claims that fish habitat is keeping them from cleaning it up but the headwaters is high & dry 9 months of the year - hardly fish habitat. If the stumps provide protection for the fish, let them remove the stumps from the middle of the lake & place these stumps strategically along the banks & make everyone happy."
- "We don't believe this has much impact on our situation. Our revenues are slowly declining because people don't want to come here because there is nothing to do. There are very few shops/restaurants/other places to go. We need more events & activities. It is very expensive to stay in Chelan in the summer. Why would someone come here to vacation if they can't even have a nice meal out in a restaurant. The lake is of course a big draw - but it is not & cannot be everything - especially at these prices."

8.2.3 Case Studies

The following section presents case studies intended to shed further light on the potential costs and benefits of modified lake levels.

8.2.3.1 Selected Comparative Locations

This section reviews the monthly distribution of lodging revenues at comparable locations, including:

- Tri-Cities and Central Washington
- Eastern Oregon
- Kootenai County in Idaho, and,
- Penticton, Kamloops and Kelowna in British Columbia.

Table 87 presents the annualized revenues by month for this region and other selected areas. The potential benefits accruing in the month of May are the focus of this evaluation.

Tri-Cities and Central Washington

Wolfgang Rood Hospitality Consulting and PKF Consulting track the occupancy and average room rates of Pacific Northwest hotels on a monthly basis by in the publication **Trends in the Hotel Industry**.

Approximately 25 hotels and motels are located in the Tri-Cities and Central Washington area. These hotels are mainly located in the Tri-Cities, Wenatchee, Moses Lake, Ephrata and Yakima.

As shown in Table 88, May represents approximately 10% of the Tri-Cities and Central Washington lodging revenues.

Eastern Oregon

Approximately 9 lodging facilities are tracked in **Trends in the Hotel Industry** in Eastern Oregon. Most of these facilities are located in Bend, Oregon, which provides comparable vacation amenities for residents from the Portland metropolitan area. May represents 8.9% of annual revenues in this region.

Kootenai County & Idaho

Kootenai County, home to Coeur d'Alene, is a major summer destination vacation area. As shown in Table 87, May accounts for 8.8% of annual lodging receipts.

Within Idaho's Region 1 (includes Benewah, Bonner, Boundary, Kootenai and Shoshone Counties), Kootenai County dominates the travel market, accounting for more than 80% of taxable lodging receipts. In this region, for every dollar expended on accommodations, there are an estimated $5.56 spent on other travel items. This is more than in Chelan County and the Lake Chelan area.

British Columbia

Another useful comparison to Lake Chelan is the Thompson-Okanagan region of British Columbia, which includes the Cities of Penticton, Kamloops and Kelowna, as well as other smaller communities. This area of BC provides many of the same amenities to Vancouver B.C. residents that Lake Chelan provides to Central Puget Sound residents.

Over the past four years (1994 through 1997, 1998 data is not available), the region averaged lodging revenues of $136 million per year. Kelowna, Kamloops and Penticton averaged $33.7 million, $28.4 million and $11,7 million, respectively (in Canadian dollars). Adjusting for the exchange rate, the Lake Chelan area falls somewhere between Kamloops and Kelowna.

May lodging receipts are relatively consistent in the region, ranging from a low of 7.9% of total receipts in Penticton to a high of 9.1% in Kamloops. This region of BC accounts for 13.1% of total BC lodging receipts on an annual basis and May's receipts in the region are slightly lower than the annual average (12.6%). This indicates that the region's performance tracks closely with overall BC trends. In the above-mentioned cities, May is equal to or outperforms the annual average. Penticton accounts for 1.1% of total BC lodging revenues, and the May receipts are also equal to 1.1%. Kelowna accounts for 3.3% of total BC lodging receipts but May accounts for 3.5% of the BC average. September accounts for between 10.7% and 12.5% in the cities.

8.2.3.2 Summary Conclusions

May represents approximately 7.9% of annual revenues in the Lake Chelan area and in Penticton. All other comparable locations experience between 8.8% and 10.0% of their annual revenues in May.

The average May returns across all of these comparable areas is 8.9% of annual revenues, which is 1.1% greater than in the Lake Chelan area. This comparison indicates that the Lake Chelan area could experience an increase in May of 1.1% of annual revenues. A later section addresses the percent of this gain that could be associated with improved lake levels.

8.2.3.3 Boating Community Indicators

Increased boating activity has been suggested as a major beneficial use resulting from achieving higher lake levels in May. The following section documents relevant national trends as well as trends at selected Puget Sound marinas.

National Trends

National Trade Publications, Inc. produces an annual marina survey covering trends in the boating industry. The 1998 survey asked responding marinas to define when peak boating season occurs. May was viewed as a peak month by 68.5% of respondents, more than in April or September or any other off-peak month. (See Table 87)

Table 87 - Percent of respondents indicating what months are part of peak boating season

Month	Percent
January	8.6%
February	10.8%
March	19.9%
April	41.0%
May	68.5%
June	85.1%
July	88.4%
August	83.0%
September	57.4%
October	32.6%
November	15.6%
December	8.9%

Source: 1998 Marina Survey by Boating Industry

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Table 88 – Monthly Distribution of Lodging Revenues at Selected Comparative Locations

Month	Lake Chelan	Tri-Cities - Eastern Washington	Eastern Oregon	Kootenai County	Penticton	Kamloops	Kelowna	Average	Difference
January	0.6%	5.5%	4.6%	3.4%	2.8%	4.0%	4.5%	4.1%	3.5%
February	1.6%	6.7%	6.4%	4.0%	3.5%	4.7%	5.3%	5.1%	3.5%
March	2.0%	8.2%	7.5%	5.4%	5.2%	6.5%	6.7%	6.6%	4.6%
April	4.4%	8.9%	8.1%	6.0%	4.5%	6.1%	6.7%	6.7%	2.3%
May	7.9%	10.0%	8.9%	8.8%	7.9%	9.1%	8.9%	8.9%	1.1%
June	12.7%	11.4%	10.5%	11.9%	10.0%	10.8%	10.5%	10.8%	-1.8%
July	24.2%	10.6%	12.4%	16.2%	19.3%	14.6%	14.9%	14.7%	-9.6%
August	26.3%	9.9%	12.3%	16.3%	24.4%	15.0%	15.5%	15.6%	-10.8%
September	12.1%	9.3%	11.1%	12.1%	10.9%	12.5%	10.7%	11.1%	-1.0%
October	5.6%	8.3%	8.0%	7.3%	5.9%	7.6%	7.1%	7.4%	1.8%
November	1.8%	6.1%	5.3%	4.2%	2.6%	4.5%	4.3%	4.5%	2.7%
December	0.7%	5.1%	4.9%	4.4%	2.9%	4.8%	4.9%	4.5%	3.8%

Notes:

1. Lake Chelan data are unweighted results of the survey of lodging providers for the years 1997, 1998 and January through September for 1999
2. Results for Tri-Cities/Central Washington and Eastern Oregon are taken from monthly issues of **Trends in the Hotel Industry** by Wolfgang Rood Hospitality Consulting and PKF Consulting for 1997, 1998 and January through August for 1999
3. Results for Kootenai County come from Idaho State Tax Commission for the years 1996, 1997 and 1998
4. Results for British Columbia areas comes from Room Revenue by Development Region – Monthly Series for the years 1994, 1995, 1996 and 1997

Source: BST Associates using data from various state/provincial reports

Western Washington Marina Trends

Transient moorage activity statistics in selected Puget Sound marinas help reveal the preferences of Puget Sound boat owners for boating activity by month. Most of the transient moorage that occurs at these marinas is by smaller boats, similar to those that use Lake Chelan.

Port of Port Townsend Boat Haven. The Port of Port Townsend Boat Haven is a modern, full service marina, located approximately 1 mile south of downtown Port Townsend. The Boat Haven provides a home for 475 boats and 40 businesses engaged in marine construction, sales and service. The Boat Haven has 400 slips ranging in length from 20 to 50 feet. Transient moorage is available on a first come, first served basis at the transient float and as slips become available. The Boat Haven has accommodated 5,100 to 6,300 boats per year during the past five years, ranging from a low 5,131 in 1994 to a high of 6,248 in 1996. On a monthly basis, approximately 75% to 80% of the activity occurs between May and September. May and September account for 11.9% and 15.6% of transient boating activity, respectively.

Poulsbo. The Poulsbo Marina, owned and operated by the Port of Poulsbo, provides guest moorage for approximately 130 boats as well as good access to downtown Poulsbo. The months of May and September account for 14.0% and 10.8% of annual revenues, respectively.

Brownsville. The Port of Brownsville, located north of Bremerton, offers guest moorage for approximately 60 boats at its 30-foot long float and 34 slips. Annual revenues average approximately $12,000 per year. May and September account for 10.4% and 8.2% of total revenue, respectively. Shoulder season usage is very dependent on good weather.

Bremerton and Port Orchard. The Port of Bremerton has two marinas, Bremerton and Port Orchard. The Bremerton Marina is a transient only facility with 45 slips and a 300 foot-long float. It offers moorage for approximately 55 to 60 boats. Port Orchard has guest moorage facilities to accommodate approximately 130 boats at its 3,000 foot long dock and 44 slips. Port Orchard is another good example of the facility envisioned at Port Townsend. May and September account for 9.5% and 10.5% of total revenues, respectively.

Port of Seattle Bell Harbor. The Port of Seattle has a 35 slip transient marina with additional usable dock space of 1,900 feet. The Bell Street Marina is located on the Central Waterfront, adjacent to Bell Street Pier and down the hill from the Pike Place Market. Bell Harbor Marina is being marketed to people who want to visit Seattle by boat and need short-stay moorage, which goes up to 7 days. In its first full year of operation (1997), Bell Street accommodated approximately 4,500 boats. May and September accounted for 8.9% and 9.5% of total revenues, respectively.

Oak Harbor Marina. Oak Harbor Marina has a capacity for approximately 80 boats in guest moorage. Annual revenues average $57,000 during the past two years. May and September accounted for 14.0% and 9.8% of total revenues, respectively.

Friday Harbor Marina. The Port of Friday Harbor has space for approximately 150 guest boats. During 1996 and 1997, the marina accommodated approximately 17,000 to 18,000 boats. May and September accounted for 9.1% and 13.9% of total revenues, respectively.

British Columbia Clearances by Water. There are several other major transient marina facilities of regional facilities in Canada and Puget Sound. Statistics Canada reports annual clearances of persons entering BC waters by vessel and BC residents visiting U.S. waters by vessel. May and September account for 7.6% and 11.1% of annual clearances, respectively.

Pierce County Boat Launch Activity. Revenue from boat launches collected at MetroParks boat ramps has declined slightly over the past few years. In Pierce County, May launch activity represents 7.5% of launch activity and September represents 15.6% of launch activity on average.

Conclusions. There appears to be substantial evidence that both nationally and locally:

- May is an important month for boating activity, accounting for 8% to 14% of total transient boating activity, depending on the marina,
- September is also an important month, accounting for 8.2% to 15.6% of annual activity, depending on the marina.

8.3 Benefit Cost Comparisons

The following section reviews the benefits and costs of modifying lake levels as requested by the Lake Level Committee.

8.3.1 Potential Costs

Chelan PUD staff in conjunction with the Lake Level Committee have recently evaluated the potential lost power sales if the Lake Level Committee's recommendations were put into effect. The average annual cost is estimated by Chelan PUD to be approximately $218,275[18]. (See Table 89)

Table 89 – Estimated Power Sales Losses due to Implementing the Lake Level Committee's Recommendations

	Gross Revenues	
Assumptions	**Annual**	**NPV**
Loss of power sales/Cost to buy power	$218,275	$4,143,814

Source: BST Associates using data from Chelan PUD

The net present value of these losses are estimated by discounting the annual real loss of power sales over 50 years at a real discount rate of 4.75% (e.g., used by Bonneville Power Administration in the Lower Snake River Salmon Juvenile Mitigation Feasibility Study). The net present value of the lost gross power sales ranges of approximately $4.1 million.

[18] At the time of this writing, no written documentation was provided to BST Associates to explain how this number was derived.

8.3.2 Potential Benefits

As determined above, Lake Chelan area lodging receipts are lower than most comparable areas in May but not in September. On average, May receipts in Chelan are approximately 1.1% lower than comparable competitive facilities. It is difficult to assess exactly what percentage of the increased May receipts are directly attributed to lake levels. However, there are strong arguments that a substantial percentage of the gain may be directly attributed to improved lake levels and subsequent improved access to lake facilities (e.g., boat ramps, marinas, fixed docks etc.).

The results of the **1998/1999 Recreation Use Assessment** reviewed in Chapter 3, indicated that water-based activities accounted for 91% of all recreational activities, across all Lake Chelan facilities. Survey respondents who engaged in motor boating activities accounted for 49% of all recreational activities, respondents engaged in other water sports but not motor boating engaged in 42% of recreational activities. Only 9% of survey respondents indicated that they only engaged in non-water recreational activities. In addition, the recreation use assessment found that:

- Most recreational activity occurred in the downlake basin,
- The downlake basin is nearing or exceeding capacity in the peak season both in the upland facilities and in the water area at the present time,
- Virtually all access to the uplake basin was by boat and,
- One of the major complaints by recreational users in the Spring was lack of high water because of lower lake levels which made water access to ramps and marinas more difficult.

As a result of these recreation survey responses, it could be argued that lake level accounts for between 49% (motor boat only) and 92% (all water sports) of recreational activity in the spring and early summer.

According to a recent study prepared for the State of Oregon[19], active recreation users (defined as those travelers who participated in some form of focused physical activity such as hiking, biking, fishing, hunting, off-road vehicle use, among other active forms of recreation) accounted for approximately 32.0% of the visitor expenditures occurring in the rural areas of Oregon.

Passive recreation users (travelers who participated in activities that did not demand specific physical activity, including visiting a beach, viewing wildlife, photography and like activities) accounted 43.8%. "Other" travelers (whose plans included neither active or passive recreation but were instead attracted to visiting landmarks, historic sites, museums, fairs/festivals, shopping and like activities) accounted for the remaining 23.9% of visitor expenditures. The physical amenities of the recreational sites accounted for between 32% and 75% of tourist expenditures in rural Oregon. This range is comparable to the 49% of activity attributed to boating at Lake Chelan.

[19] **Oregon Outdoor Recreation, Profile and Economic Impact**, prepared for the Oregon Tourism Commission by Dean Runyan Associates, June 1999.

Table 90 – Activity & Relationship to Expenditures in Rural Oregon

Category	Total	Active	Passive	Other
Accommodations	536	147	276	114
Eating, Drinking	799	180	373	237
Food Stores	349	149	154	46
Recreation	464	270	124	69
Retail Sales	604	160	260	184
Ground Transportation	576	158	271	146
Total	3,328	1,064	1,458	796
Percent of Total				
Accommodations		27.4%	51.5%	21.3%
Eating, Drinking		22.5%	46.7%	29.7%
Food Stores		42.7%	44.1%	13.2%
Recreation		58.2%	26.7%	14.9%
Retail Sales		26.5%	43.0%	30.5%
Ground Transportation		27.4%	47.0%	25.3%
Total		32.0%	43.8%	23.9%

Source: Dean Runyan Associates, prepared for the State of Oregon in 1999

We estimate that a minimum of 49%, and a maximum of 91% of the increased visitor expenditures during the month of May could be attributed to lake levels. These ratios are used below to estimate the potential increase in revenues associated with improved lake levels in Lake Chelan.

Table 92 presents the annual and net present value estimates of the estimated benefits from additional tourist activity. If 1.1% in additional revenues occurred, the Lake Chelan area would experience an annual gain of $523,000. The range of gross annual revenues attributable to lake levels is estimated to be 49% to 91% or $256,491 to $476,340 per year. The net present value of these gross receipts is estimated at between $4.9 and $9.0 million over the 50 year life of the relicense.

Table 91 - Estimated Benefits due to Implementing the Lake Level Committee's Recommendations

	Gross Revenues	
Potential Benefits	**Annual**	**NPV**
High Estimate - Gain of 1.1% in May, 91% from Lake Levels	$476,340	$9,043,014
Low Estimate - Gain of 1.1% in May, 49% from Lake Levels	$256,491	$4,869,311

Source: BST Associates

These estimates are considered conservative because they are based on:

- actual tourist income in 1998 with zero growth in real visitation and expenditures by visitors,
- estimates include lodging activity at hotels, motels, bed and breakfasts and rental facilities but does not include visitor activity occurring at overnight stays at second homes, public and private campgrounds and visitors staying with friends/relatives nor does it include day visitors.

As indicated in Figure 14, visitor expenditures at lodging facilities in Chelan County accounts consistently for approximately 56% of total tourism expenditures. As a result, the above estimates may undercount potential benefits by a factor of nearly 2. The adjusted estimate is still within the bound of estimates from low to high presented in Table 91.

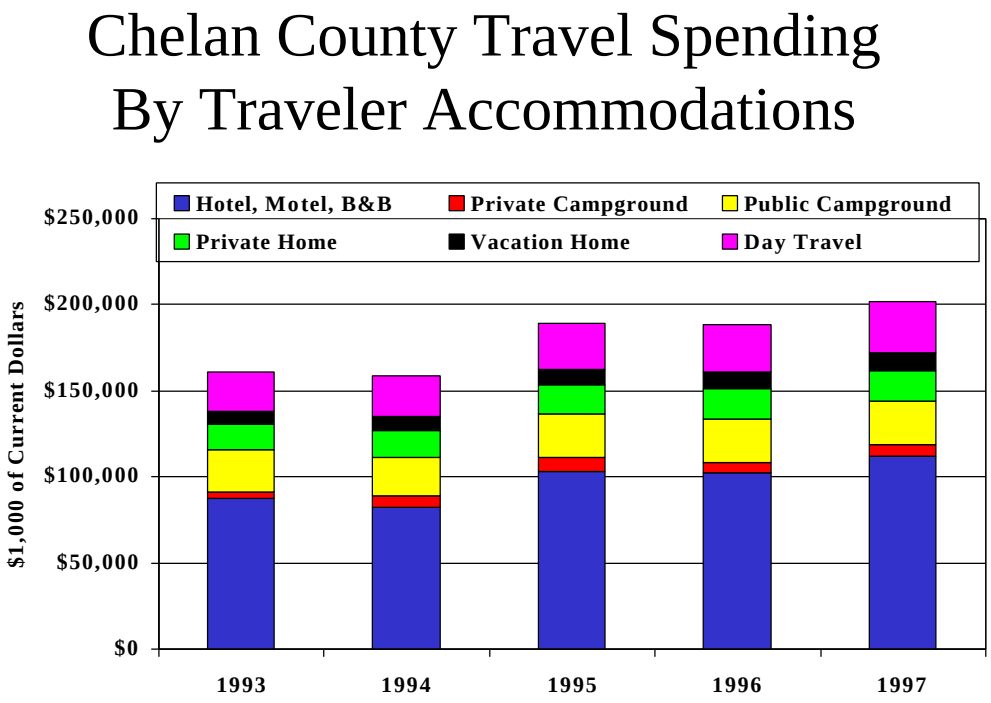
The range of benefits from increased tourism is presented in Table 92.

Table 92 – Adjusted Tourism Benefits – Range of Estimates

	Gross Revenues	
Category	**Annual**	**NPV**
Low Estimate of Tourism Benefits	$256,491	$4,869,315
Mid Estimate of Tourism Benefits	$458,019	$8,695,205
High Estimate of Tourism Benefits	$476,340	$9,043,014

Note: Tourism benefits are extended from the lodging industry to all tourist sector by dividing lodging industry sales by 56%, which represents the percentage of tourist sales occurring at lodging facilities, as described above
Source: BST Associates

Figure 14 – Chelan County Travel Spending by Traveler Accommodations
Source: Washington State Division of Tourism



8.3.3 Benefit Cost Comparisons

This section presents a comparison of benefits and costs, comparing lost power sales with additional tourism benefits.

8.3.3.1 Standard Benefit Cost Comparison

The benefit to cost ratios range from 1.18 to 1 to 2.18 to 1, with benefits exceeding costs in all cases, as shown in Table 93.

Table 93 – Benefit Cost Comparison based upon Net Present Values

Category	Cost	Benefit	BC Ratio
Lost Power Sales	($4,143,814)		
Tourism Benefits			
Low Estimate		$4,869,311	1.18 to 1
Mid Estimate (Adjusted)		$8,695,199	2.10 to 1
High Estimate		$9,043,014	2.18 to 1

Source: BST Associates, Chelan PUD

8.3.3.2 Comparison of Reasonability

Another way to judge the reasonability of the benefit estimates is to calculate the number of visitor days required to compensate for lost power sales. If the lost power sales are $218,275 per year, then it will require an estimated 7,276 visitor days to compensate, based upon an average visitor expenditure of $30.

The average number of people per day at downlake sites is 4,414 during the peak season and 1,223 during the off season, according to the **1998/1999 Recreational Use Assessment** conducted by Howe Consulting, Inc and Duke Engineering & Services, Inc for Chelan PUD. Dividing the required number of days by the average use suggests that the highest lost power sales can be compensated for by 1.6 days of use during the peak season and 5.9 days during the off season. (See Table 94)

Table 94 – Additional Visitor Days to Compensate for Lost Power Sales

		Number of	Number of Days of Use	
	Average	Visitor	Downlake Sites	
Lost Power Sales	Expenditure	Nights	Peak Season	Off Season
@ $218,275 per year	$30.00	7,276	1.6	5.9

Source: BST Associates, lost power sales from Chelan PUD, average visitor expenditure per day from the 1998/1999 Recreational Use Assessment, as reported in Chapter 3.

8.3.3.3 Facility Improvement Costs

Water-based facilities require lake level elevations of between 1,091 and 1,095 feet to function effectively. Potential management changes could entail construction of new upland and water access facilities, which would improve upland facilities but not address the growing lake congestion. These improvements could also be quite costly.

The cost to build floating docks next to each of the fixed docks on the lake would cost approximately $15,000 to $25,000 per dock[20]. There are 869 fixed docks and piers in the downlake area. The cost to build floating docks with access from the fixed docks and piers could cost between $13 and $22 million.

There are also approximately 500 marina slips that do not function properly until the lake reaches elevation 1,095. The cost to improve these marina slips could range from $8 to $13 million or more.

Little is known about the bathymetry (surface profile) of Lake Chelan. As a result, it is not known whether existing boat ramps could be extended to deeper water. The distance from the end of the existing ramp to that required to operate in May and early June may preclude this solution. The cost to extend the boat ramps is unknown.

However, even if these existing facilities were improved, the growing congestion in Lake Chelan could constrain utilization of the structures during the course of the next 50 years.

There are other management procedures that could also be envisioned for the Lake:

- provide better access to uncongested portions of the lake by extending the road system and building improved facilities at the new locations (another costly course of action that would also impact environmentally sensitive areas),
- place limits on the number of people recreating in a given area, which would cap recreation use at or slightly above existing levels but would also negatively impact the local economy by reducing expenditures by tourists and recreationists, or,
- extend the season into May and early June by increasing lake levels. This would entail lost power sales but would provide better utilization of facilities that are currently under-utilized at little additional cost. The cost to extend the season is estimated to be $4.1 million in net present value, considering gross revenues and $1.6 million considering net revenues.

[20] Source: Personal communication with Mr. Jeff Gilman, Peratrovich, Nottingham and Drage Engineers and an expert on marina design and construction.

9 Appendix – Surveys used in the study

9.1 Lake Chelan Area Initial Business Survey

The Public Utility District Number 1 of Chelan County is seeking to re-license the hydropower facility at Lake Chelan. The re-licensing process includes identifying how different water levels of Lake Chelan impact the local community. Another goal of the analysis is to assess the business climate in Lake Chelan and to try to determine ways to improve it. Please take some time to fill out the following survey by the end of June, 1999, and return it in the self addressed stamped envelope to BST Associates or take it to the Chamber of Commerce office.

Your help is very important and all answers will be kept **strictly confidential**. Again, the purpose of the study is to identify how different lake-levels impact the business community and to find ways to improve the local economy in the Lake Chelan area. Thank you for your assistance.

Name of Business (Optional) _____

Owner's Name _____

Address of Business _____ Phone Number _____

Where does owner live? City/town/area_____ ZIP Code _____

9.1.1 Business Characteristics

Please describe the type of business that you are engaged in _____

Please indicate the approximate percentage of your revenue that comes from:

Retail ____ Restaurant _____ Lodging ____ Service ____ Wholesale ____ Manufacturing _____ Other _____ please describe _____

What is the legal classification of your business?

Sole Proprietor ___ Partnership ____ Corporation ___ Limited Liability Corporation ___

How many years have you been engaged in this business in the Lake Chelan area ? ___ Have you experience running other businesses in the Lake Chelan area? Yes/no,

If yes, how many years _____

Do you currently operate another business outside of the Lake Chelan area Yes or No.

If you answered yes, how many other locations do you have businesses _____. Where are they located_____

Do you own _____ or rent _____ your space or land.

If you rent, how long is the term of the lease _____

How many square feet of space (buildings) do you use for your business _____

What is the approximate current rent per square foot for buildings? _____

How many employees do you have?

Current Full Time ____ Part Time ___

Seasonal High Full Time ____ Part Time ___

Seasonal Low Full Time ____ Part Time ___

What percentage of your sales come from:

local Lake Chelan area residents (defined as Chelan, Chelan Falls, Manson and neighboring areas) _____

other Chelan County residents _____

Central Puget Sound region _____

other Washington state residents _____

other US citizens _____

foreign visitors _____

other? _____ _____

How dependent on the following selected economies is your business?

_____% dependent on full-time local Lake Chelan area citizens

_____% dependent on part-time residents in the local area

_____% dependent on non-local Chelan county citizens

_____% dependent on Central Puget Sound citizens

_____% dependent on other (non-county) US citizens

_____% dependent on foreign citizens

_____% dependent on other (please describe _____)

How has this mix changed over time? _____

_____

_____

How would define your primary market area? Where do most of your customers come from – please describe the geographical boundaries of your main customer base. _____
_____

How would define your secondary market area? Where do the rest of your customers come from – please describe the geographical boundaries of your remaining customer base._____

_____
_____

What is your current revenue before taxes & expenses (gross sales – remember we will not publish information on specific businesses but will instead aggregate up to an industry level so your answer will be confidential) _____

What are the seasonal patterns of your revenues by quarter. How much of your annual revenue comes from Q1 _____% Q2 _____% Q3 _____% Q4 _____%?

9.1.2 Business Outlook

How has your gross income from your Lake Chelan area business location changed during the past three years ?

1997 was _____% of 98, 96 was ____% of 98, 95 was _____% of 98

What growth do you expect for the next three years

1999 __ %, 2000 __%, 2001 __%

On a scale of one to five (where 1 is very poor, 5 is excellent), what is your opinion of the current state of the economy in Lake Chelan area?	1	2	3	4	5
What is your prognosis for 1999?	1	2	3	4	5
What is your prognosis for year 2000?	1	2	3	4	5
What are the long-term growth prospects (5 years) ?	1	2	3	4	5
On a scale of one to five, how does the state of the local Lake Chelan area economy affect your business? (1 is no effect, 5 is high effect)	1	2	3	4	5

9.1.3 Important Business Factors

Please select the most important factors that affect your business (on a scale of 1 to 5, where 1 is unimportant and 5 is very important)

Factors:	**Unimportant**				**Important**
Market Competition	1	2	3	4	5
Availability of Quality Labor	1	2	3	4	5
Cost of Labor	1	2	3	4	5
Cost of employee training	1	2	3	4	5
Cost of & Availability of supplies	1	2	3	4	5
Rent or Mortgage Cost	1	2	3	4	5
Lake Water Levels	1	2	3	4	5

Please select the most important factors that affect your market (on a scale of 1 to 5, where 1 is unimportant and 5 is very important)

Factors:	**Unimportant**				**Important**
Government regulations (which ones_____)	1	2	3	4	5
City Policies (which ones _____)	1	2	3	4	5
County Policies (which ones _____)	1	2	3	4	5
Other _____	1	2	3	4	5
Competing resort communities	1	2	3	4	5
(which ones in particular _____)					
Improved Businesses in Chelan Co.	1	2	3	4	5
Advent of big-box retailers in Wenatchee	1	2	3	4	5
Changing customer tastes	1	2	3	4	5
County Policies (which ones _____)	1	2	3	4	5
City Policies (which ones _____)	1	2	3	4	5
Other _____	1	2	3	4	5

Please rate the importance of the following factors on your individual business (on a scale of 1 to 5, where 1 is very unimportant and 5 is very important)

Factors:	**Unimportant**				**Important**
Personal Financing (working capital)	1	2	3	4	5
Market Competition	1	2	3	4	5
Availability of Bank Financing	1	2	3	4	5
Availability of Support Services	1	2	3	4	5
Chamber of Commerce	1	2	3	4	5
City of Chelan	1	2	3	4	5
Chelan County	1	2	3	4	5
US Government Agency (_____)	1	2	3	4	5
Other (_____)	1	2	3	4	5
Business Planning	1	2	3	4	5
Govt. Regulations/Zoning	1	2	3	4	5

Workforce Availability	1	2	3	4	5
Personal Ambition	1	2	3	4	5
Consumer Tastes/Preferences	1	2	3	4	5
Public Opinion	1	2	3	4	5
Transportation Costs	1	2	3	4	5
Transportation Improvements	1	2	3	4	5
Other _____	1	2	3	4	5
Other _____	1	2	3	4	5

Are retail prices higher in the Lake Chelan area than in other areas Yes or No?

Please explain why or why not?_____

_____

Does it cost more to operate a business in the Lake Chelan area than in other areas Yes or No? Please explain why or why not?_____

_____

How important are Lake Chelan area' s festivals and events to your business?

Please describe which ones are important & why_____

_____

Please describe which ones are not important & why_____

_____

Would you be willing to get involved in organizing festivals and events? Yes/No

Please rate the importance of the following factors on the Lake Chelan area economy

(on a scale of 1 to 5, where 1 is unimportant and 5 is very important)

Factors:	**Unimportant**				**Important**
General economic conditions	1	2	3	4	5
Lack of marketing of Lake Chelan area	1	2	3	4	5
Current ownership changes	1	2	3	4	5
Lack of shared vision for success	1	2	3	4	5
Volunteer burnout	1	2	3	4	5

Wrong or inadequate capitalization of businesses	1	2	3	4	5
Inadequate advertising	1	2	3	4	5
Lack of leadership	1	2	3	4	5
Lack of festivals/events	1	2	3	4	5
Tourist Information Center	1	2	3	4	5
Lake water levels	1	2	3	4	5
Keeping lake levels at current levels	1	2	3	4	5
Bringing lake levels up earlier in the year	1	2	3	4	5
Keeping lake levels up later in the year	1	2	3	4	5
Drawing down the lake in the summer	1	2	3	4	5
Other _____	1	2	3	4	5

9.1.4 What would you like to see happen in Lake Chelan area

What businesses that are not currently in Lake Chelan area, would you like to see provided that could either help your business or you as a consumer? Please list below:_____

_____

_____

What services could your business use? Please list below:_____

_____

What factors have contributed to the current business conditions in Lake Chelan area? Please list below: _____

_____

How would you recommend improving the business climate in Lake Chelan area? Please list below: _____

_____

What are some of the natural amenities that could be used to promote the area to residents and visitors? Please list below: _____

_____

What do you think you would need to make your business more successful? Please list below: _____

_____
_____
_____
_____

Lake Levels – Lake Chelan is currently regulated between elevations of 1,079 feet and 1,100 feet. In normal water years, the water level is maintained at the higher level from approximately mid-May through early September. After Labor Day, the water level is typically drawn down until the next year.

1. The Lake Level committee has requested that the Lake be refilled earlier in the year (reaching 1,091 feet by May 1st , 1,094 by June 1st and 1,099 by July 1st), which is approximately 1 month earlier than usual. In addition, the Committee recommended that the Lake be drawn down earlier than usual, also approximately one month earlier.

Do you support the Lake Level Committee's recommended levels? Yes or No

If no, please describe how you would like to see the lake managed. _____

_____
_____
_____
_____

If yes, how much additional income would your business receive **per day** in direct revenue for each day that the water level is at 1,100 feet? _____

Please describe how your business would impacted? _____

_____
_____
_____
_____

2. The National Marine Fisheries Service (NMFS) is also evaluating the need for water to enhance salmon recovery efforts in the Columbia River. NMFS proposed plans for future water levels are currently being developed. However, the NMFS plan could reduce water levels during the summer by between 2 and 13 feet. How much income would your business lose **per day** if water levels were 2 feet lower in summer (1,098 feet elevation)? _____ How much income would your business lose **per day** if water levels were 13 feet below normal summer water levels (1,087 feet)? _____

Please describe how lake-levels impact your business and the economy both directly and indirectly?_____
_____
_____
_____

Thank you for your help in completing this survey. Please feel free to include any other comment or suggestion on how to improve the business climate in Lake Chelan area.

9.2 Lake Chelan Area Lodging Follow-up Survey

As you are aware, the Public Utility District Number 1 of Chelan County is seeking to relicense the hydropower facility at Lake Chelan. The relicensing process includes identifying how different water levels of Lake Chelan impact the local community. Another goal of the analysis is to assess the business climate in Lake Chelan and to try to determine ways to improve it. BST Associates is the lead consultant on socio-economic issues.

One of the key questions being discussed is the impact on revenue in the lodging sector as a result of lake levels. We need some help establishing an accurate baseline for comparative purposes. Please take some time to fill out the following brief survey, and FAX it back to us by November 15, 1999 at (425) 486-2977 [BST Associates' FAX number]. Your help is very important and all answers will be kept **strictly confidential**. We will aggregate the data to the industry level and will not report any information at the level of the individual firm. Please feel free to call Paul Sorensen, lead researcher at BST Associates at (425) 486-7722 if you have any questions, concerns or comments. Again, the purpose of the study is to identify how different lake-levels impact the tourism industry and to find ways to improve the local economy in the Lake Chelan area. Thank you for your assistance.

Name of Business _____

Contact's Name _____

Phone Number _____

9.2.1 Lodging Revenues in 1998 (Purpose = to Establish a Baseline)

Please fill in the table on the next page with the results from your 1997, 1998 and 1999 (year to date) returns from lodging revenue only. We don't need to know the total revenue, just the average percents and the average room rates.

9.2.2 Impact of Lake Levels

For several months, PUD staff have been meeting with the Lake Level Committee, which represents a variety of Chelan Area stakeholders. The goal of the committee is to draw the lake level up to 1,091.0 by May 1, five feet higher than the current water budget. By June 1, the goal would be to reach a lake level of 1,094.0 feet. After the summer season, the recommended lake level would be approximately 1 foot below current conditions. [It should be emphasized that these lake levels are targets, which may or may not occur based upon weather conditions. Under the severe water conditions experienced in 1999 (high snow pack and possible flood conditions), it would not have been possible to meet the target elevations.]

Based upon current operating conditions, do you support the Lake Level Committee's recommended levels, based on current operating procedures?

Please circle Yes or No

Table 95 – Actual Lodging Revenue Receipts

Month	% Occupancy	Average Room Rate in $dollars & cents	% Revenue
Year = 1997			
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Year = 1998			
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Year = 1999 year to date			
January			
February			
March			
April			
May			
June			
July			
August			
September			

Please describe how implementing the Lake Level Committee's Recommendations would impact your business. _____

If you do not agree with the Lake Level Committee's recommendations, please describe how you would like to see the lake managed. _____

Thank you for your help in completing this survey. Please feel free to include any other comment or suggestion on how to improve the business climate in Lake Chelan area.

_____
_____
_____
_____
_____
_____
_____
_____

10 Appendix – Comment Letters and March 10, 2000, Meeting Minutes

TO: Michelle Smith

FROM: Don Jamtaas

DATE: March 7, 2000

SUBJECT: Comments Re Lake Chelan Hydroelectric Project Socio-Economic Study Element Final Report, Dated January 27, 2000

General Comment

The report itself is very impressive and informative. I still have my general comment that it greatly shortchanges the impact of *tourism* and I have made that comment several times before. I recognize, however, that it is diffucult to find the data regarding a significant element of Lake Chelan tourism, that being the large impact of the hundreds of private summer only residences along the lake shore. The report attemts to include some recognition of this impact, but the lack of data makes the treatment of tourism very very conservative.

Approximately 750 non-commercial residences line the shoreline of the lake and 75 to 80 percent are summer only residences which remain vacant off season (owned mostly by residents of Wenatchee and the Puget Sound areas). I believe these travelers should have been included in the tourism catagory since the owners or rentors of these residences come to Lake Chelan for much the same reasons as tourists: (a) Weekends, (b) one to 4 week vacations, (c) Loaned to others, (d) Retirees spending the summer only, (d) Etc..

In addition to their impact on the local economy similar to other tourists, they have other significant economic contributions: (a) They are all expensive properties which result in a major contribution to the tax base, with little or no drain on services like schools, etc., (b) Huge contribution to *construction industry* with large and expensive homes being built along the lake replacing most of the older cabins, (c) Etc..

Specific Comments

1. The national trend comparisons on pages 117 and 118 are not very relative. Lake Chelan is unique in that a large percentage of its tourist base comes from the Puget Sound rainy area and when May arrives they are ready to scramble to the sunshine.

2. On page 109, first paragragh: At 1,088 feet the lake level is 10 or more feet below most fixed dock levels. Also, at past lake levels on memorial day, fixed docks are rarely usable (not until well into June--last sentance of first paragraph).

United States Department of the Interior

NATIONAL PARK SERVICE
Lake Chelan National Recreation Area
Ross Lake National Recreation Area
North Cascades National Park
2105 State Route 20
Sedro-Woolley, Washington 98284-9394

IN REPLY REFER TO:
A38

March 6, 2000

Mr. Gregg E. Carrington
Relicensing Project Manager
Public Utility District No. 1 of Chelan County
P.O. Box 1231
Wenatchee, Washington 98807-1231

Ref: Lake Chelan Hydroelectric Project No. 637
Socio-Economic Study Element - Final Report, January 27, 2000

Dear Mr. Carrington:

Our agency review comments on the Final Socio-Economic Study Element are as follows.

In section 3.1.2.7 Purple Point on page 17 and 18 the report refers to "Purple Point being the only NPS site on a permit system". This is incorrect. The information here appears to be taken from the Recreational Study Report which made the same incorrect statement. The corrected sentences should read: "All of the USFS and NPS docks on Lake Chelan are on a fee permit system. All up-lake NPS backcountry campsites require a non-fee backcountry camping permit, including Purple Point so as to track use and limit overcrowding."

In the next paragraph, also referring to Purple Point, the report states, "based on monitoring during the peak and off-peak seasons, the estimated average daily use by month was below the estimated daily capacity of the site." It is our experience that Purple Point Campground is full many days during the peak visitor season.

In section 3.1.2.8 Stehekin on page 18 the report refers to a "small airport" at Stehekin Landing. This statement needs clarification. The Stehekin Landing has docking facilities that can accommodate 3 float planes. There is no "small airport" at the Stehekin Landing.

In Table 2 - Lake Chelan Downlake Marinas on page 21 the table has a question mark under the Water Accessibility column for Stehekin Landing. The Stehekin Landing area for private boats is accessible at a water level of 1088 feet. However, the Landing area for the Lady of the Lake Commercial Boat is not accessible below a lake level of 1095 feet. A lake level below 1095 feet requires the boat to dock at the boat launch ramp and have the passengers walk up the ramp to

#2900

the landing. The table should contain an asterisk under Water Accessibility for the Stehekin Landing with a clarification statement below the table.

Weaver Point is listed on the table as a marina. Weaver Point is a campground similar to other NPS facilities at Purple Point and Flick Creek and not a marina facility so it should be removed from the table.

This concludes our agency comments on the Socio-Economic Study Element. If you have questions or concerns please contact Dan Moses, Lake Chelan Management Assistant at our Chelan Office, 509-682-2549.

Sincerely,

William F. Paleck
Superintendent

cc:
Shishido, DOJ
Sleeger, DOI
Smith, USF&WS
Bernard, BIA
Fisher, BLM
Martinez, USFS

MEMORANDUM

To: Gregg Carrington

From: Lake Chelan Lake Level Committee

Subject: Socio-Economic Study, Final Report dated January 27, 2000 as amended

References: Subject Report and your Memorandum of February 2, 2000

We have reviewed the referenced documents and offer the following comments. Changes have been italicized to highlight them, where applicble.

General:

(1) The Memorandum, or Addendum, should be cross-referenced to specific areas affected within the final report.

(2) We believe the report, overall, is very well done.

Memorandum:

"Background"

(1) The third sentence in the first paragraph would be more accurate if reworded as follows: "The LLC believes that higher lake levels could *positively* impact tourism in May through June and asked Chelan PUD if there was any way that the operation could be changed so that lake levels could be *predictably higher* in May and June."

(2) The second sentence should read: "The overall goal of both groups was to determine if there was a way to *increase* lake levels in May *and June* and minimize the impact on power generation."

"Findings"

(1) July 1, 1999 - Proposal No. 1. The dollar value of reduced power generation should be stated, as in the other proposals.

(2) January 20, 2000 - Proposal No. 4 - The last paragraph should be revised to read: "These results indicated that maintaining a reservoir elevation *an average of 1088* feet on May 1 *and 1095 on June 1* would have a positive impact on power generation." These findings would be clearly supported by inclusion of the computer runs for these two dates.

Final Report

We have avoided making strictly editorial comments but might suggest a careful editing to correct such matters as "12 acre versus 12 mile" in 3.1.1.4, Highway 97A versus 97 in 3.1.1.5 and a mixing of parks in 3.1.1.6. Nits, but examples.

Table 2. The following accessibility levels should be added: 1090 to 25-mile Creek; 1083 and 1090 to Harris Marina; 1083 to M&M Marina; 1083 and 1090 to Lake Chelan Shores; 1083 to Yacht Club; 1083 to Lakshore Marina; 1090 to Chelan Boat Club; 1083 and 1090 to Manson Bay; 1079 to Cove Marina; and 1090 to Kelly's Resort.

5.8.1 Suggest either deleting the first paragraph or changing the last sentence to read: "The committees' recommendation was to attain a level of *1095 feet by Memorial Day and lower the level to 1099-1099.5 on Labor Day."*

Table 52 - Provide a footnote or other clarification that there was only one "No Answer."

Gregg, please let us know if you have questions on any of these matters.

May 1 Elevations - w/co

Base	Prop1	Prop2	Prop3	Prop4
1086.45	1090.92	1090.8	1090.92	1087.9
1088.26	1091.57	1090.73	1091.57	1088.26
1086.72	1090.95	1088.21	1090.95	1087.97
1086.56	1090.93	1087.84	1090.93	1087.81
1086.45	1089.78	1086.94	1089.72	1086.94
1088.65	1092.5	1090.82	1092.5	1089.27
1086.86	1091.17	1089.17	1091.17	1088.09
1086.49	1090.83	1088.3	1090.83	1087.87
1087.19	1091.36	1090.45	1091.36	1088.26
1090.08	1090.86	1090.74	1090.85	1089.97
1086.51	1090.84	1089.09	1090.84	1087.87
1086.75	1091	1089.82	1091	1088.04
1086.57	1090.95	1087.75	1090.95	1087.71
1086.55	1090.69	1087.64	1090.69	1087.61
1087.06	1091.26	1089.53	1091.26	1088.14
1086.56	1090.9	1089.06	1090.9	1087.93
1086.51	1089.91	1086.82	1089.91	1086.82
1089.42	1090.81	1089.99	1090.76	1088.4
1086.68	1091.01	1089.79	1091.01	1088.06
1086.5	1089.84	1086.84	1089.84	1086.84
1086.46	1090.8	1088.09	1090.8	1087.71
1086.79	1090.92	1089.46	1090.92	1087.97
1086.53	1090.35	1087.47	1090.35	1087.47
1086.65	1090.91	1089.57	1090.91	1087.92
1086.53	1090.42	1087.4	1090.42	1087.4
1088.34	1090.79	1089.69	1090.79	1087.87
1086.56	1090.66	1087.93	1090.66	1087.83
1086.77	1091	1090.18	1091	1087.95
1086.52	1090.64	1087.64	1090.64	1087.57
1088.17	1092.19	1090.43	1092.19	1088.99
1087.32	1091.04	1089.62	1091.03	1088.01
1086.53	1090.81	1087.53	1090.81	1087.48
1086.9	1091	1089.64	1091	1087.93
1086.54	1090.9	1088.32	1090.9	1087.85
1086.55	1090.88	1088.97	1090.88	1087.93
1086.59	1090.94	1089.51	1090.94	1087.97
1087.55	1091.8	1090.19	1091.8	1088.7
1087.74	1091.46	1090.74	1091.46	1088.28
1087.32	1091.17	1090.61	1091.17	1087.91
1089.3	1091.72	1090.78	1091.72	1088.44
1089.66	1090.92	1090.71	1090.92	1089.45
1086.75	1091.06	1090.1	1091.06	1088
1086.54	1090.49	1087.53	1090.49	1087.48
1087.8	1091.77	1090.78	1091.77	1088.54
1086.49	1090.83	1089.22	1090.83	1087.87
1087.149	1090.968	1089.165	1090.965	1088.006

June 1 Elevations w/co

Base	Prop1	Prop2	Prop3	Prop4
1094	1093.9	1093.9	1093.9	1093.81
1093.95	1094.98	1094.19	1094.98	1093.75
1094.04	1096.97	1095.89	1096.97	1094.58
1095.44	1098.93	1097.35	1098.93	1096.41
1092.67	1094.09	1093.16	1094.08	1093.16
1099.72	1099.72	1099.72	1099.72	1099.7
1099.15	1099.47	1099.46	1099.47	1099.64
1098.77	1099.39	1099.37	1099.39	1099.31
1093.93	1096.91	1096.43	1096.91	1094.4
1093.97	1094.85	1094.84	1094.85	1093.82
1095.88	1098.52	1098.18	1098.52	1096.83
1092.68	1094.64	1094.39	1094.64	1093.74
1094.23	1097.07	1095.12	1097.07	1094.77
1093.16	1094.87	1093.89	1094.87	1093.81
1094.21	1095.75	1095.34	1095.75	1094.41
1094.05	1095.68	1094.55	1095.68	1093.86
1093.92	1096.37	1094.52	1096.37	1094.11
1094.45	1096.51	1096.44	1096.51	1094.85
1097.95	1099.23	1099.23	1099.23	1099.01
1093.75	1095.37	1093.85	1095.37	1093.68
1097.16	1099.43	1099.22	1099.43	1098.39
1098.6	1100	1100	1100	1099.56
1093.99	1095.1	1094.01	1095.1	1093.88
1093.89	1095.85	1095.17	1095.85	1094.17
1094.24	1096.82	1095.08	1096.82	1094.39
1095.92	1098.34	1097.71	1098.34	1095.57
1090.37	1093.93	1091.75	1093.93	1091.65
1093.74	1095.48	1095.2	1095.48	1093.63
1093.91	1094.87	1094.36	1094.87	1093.73
1096.16	1098.84	1098.38	1098.84	1096.96
1094.15	1096.09	1096.05	1096.09	1094.69
1094.48	1096.87	1095.58	1096.87	1094.99
1097.65	1099.74	1099.58	1099.74	1098.18
1091.45	1094.14	1093.22	1094.14	1092.75
1094.01	1096.84	1096.01	1096.84	1094.95
1094.92	1097.41	1097.13	1097.41	1095.91
1096.08	1098.92	1098.66	1098.92	1097.21
1094.12	1096.26	1096.17	1096.26	1094.03
1093.74	1096.51	1095.96	1096.51	1093.69
1094.03	1094.75	1094.35	1094.75	1093.83
1095.8	1097.19	1097.17	1097.19	1095.59
1093.94	1096.03	1095.34	1096.03	1093.75
1096.41	1099.27	1097.63	1099.27	1097.32
1093.83	1096.31	1095.51	1096.31	1093.87
1097.45	1099.51	1099.51	1099.51	1098.63
1094.888	1096.838	1096.19	1096.838	1095.31

Lake Chelan Meeting Minutes

To: Distribution List

From: Michelle Smith

Date: March 10, 2000
9:00 a.m. – 4:00 p.m.

Subject: Lake Chelan Recreation and Socioeconomics

Attendees: Refer to Sign-Up Sheet

Location: Campbell's Resort, Chelan, Washington

Purpose

1) Review comments on final Socioeconomic and Recreation Use Assessment study reports
2) Review Needs Forecast and Analysis study scope and task list
3) Continue preliminary assessment of proposed PME measures

The working group discussed and agreed again that the comments related to the final Socioeconomic Report as well as the meeting minutes would be added as an addendum to the report.

Study Report Comments

Jennifer Olsen-Fielder, Lake Chelan Public Trails Committee, commented that the results in "Section 1.3.1.2" of the Socioeconomic Study are misleading and indicates that water-based activities account for 91 percent of all recreational activities across Lake Chelan facilities. Her feeling is that the statement was based on inventories and surveys at water-based sites and that there are other activities other than water-related. She states that the evidence in "Table 35, Gross Revenue by Business Type" in "Section 5.3.2" shows that the quarterly revenues indicate that water-based activities do not account for as much of the activity as stated. She asked if any other working group member supported her opinion.

Jim Urness (LCRA) agreed that it is important to recognize that the socioeconomic report is a study of the whole valley and the recreation use assessment was a study related to lake activities. If it is not clarified, then the report could be interpreted incorrectly. Michelle Smith (PUD) indicated that the confusion seems to be coming from the information pulled from the Recreation Use Assessment and that it may have been interpreted incorrectly. Bob Harris (Harris Marina) commented that the lake is the primary draw to Lake Chelan. Michelle added that BST collected data to help support the conclusion of the report, that the lake is the main attraction. By associating percentages from the Recreation Use Assessment, BST attempted to define how the lake level is being impacted by project operations and the information was used to help support that issue. However, the Recreation Use Assessment was only designed to look at water-based facilities and the data used in the Socioeconomic Report should reflect this.

It was then concluded for the record that information from the Lake Chelan Recreation Use Assessment used in the Socioeconomic Report should reflect that the Recreation Assessment only studied water-based facilities.

Jennifer (Public Trails Committee) stated that she has some proposed public trails that are within the project boundary and the proposed trail is on public right-of-way. She pointed out the study report supports the trail

proposal in several areas. The first section is "Section 1.2.2.3, Survey Results." She mentioned that in the conclusion it is stated that trails are not dependent on the peak season, nor does the trail rely on lake levels. "Section 5.4.3, Factors of Importance" lists trails as transportation improvements. She added that trails are the greatest transportation improvement because they could significantly decrease the demand on parking, particularly during the peak season. "Section 5.7.2" points out that the proposed trail system could provide beautification (Bullet No. 3) as well as provide diversity and offer multiple uses (Bullets No. 5 and 6). "Section 5.7.3" lists improving the trails network as the number one natural amenity that could be used to promote the area. Again, she expressed her opinion that trails would increase recreational opportunities and add beauty to the area.

To give some perspective on the number of surveys mailed out by BST and number of responses, Michelle (PUD) pointed the group to "Section 5.1" in the Socioeconomic Report. It explains that 384 surveys were mailed and 69 were returned, giving us an 18 percent response rate. BST considered this to be a very good return rate. Jennifer agreed and added that with that rate, the responses in the report are valid.

Recreation Use Assessment Comments

Jennifer Olsen-Fielder (Public Trails Committee) sent a comment letter to the PUD dated November 30, 1999 noting several issues. One of her issues is the lack of identification and inventory at dispersed sites, including road right-of-ways. A concern she has is that the response letter she received stated that roadways will not be recognized for the Recreation Use Assessment because it is not considered a developed recreation sites. She stated that the State Department of Transportation does recognize it.

Michelle (PUD) responded that, as stated in the response letter, on June 24, 1998 the working group discussed and determined what would be inventoried in the recreation use assessment. Road right-of-way areas were discussed. However, it was agreed by the group not to include them in the inventory because the group did not consider them to be developed public recreation sites. Gregg (PUD) emphasized that the study focused on existing public recreation sites and the survey concentrated on facilities adjacent to the lake and the response letter was not intended to mean that public roadways were not considered recreational. Jennifer stated that she found the plan to lack a comprehensive review of recreation within the study area. She mentioned that dispersed recreation above Fields Point but was not studied. Gregg informed the group that whenever dispersed activity took place, it was noted, particularly along FS and NPS land because they wanted to know if people were camping in non-established sites. If that type of activity was observed, informal surveys were conducted. Jim (LCRA) recommended that it be noted for the record why the roadways were not included so there is no misinterpretation of the survey and how it was conducted. Gregg clarified that the differences lie with what is PUD responsibility and what is recreational demand.

Barb Jackson (USFS) sent a comment letter and the Forest Service expressed concern with the emphasis put on downlake versus uplake in the overall study results. They would like to emphasize that the rustic experience uplake is very different from downlake and would like the report to recognize that the uplake experience is very valuable as well.

Needs Analysis Study

Debby Howe, Howe Consulting explained that the analysis will be used to evaluate recreation use and demands and identify recreation needs within the project boundary and adjacent lands. Concentration of the study will be on areas/sites that were used in the Recreation Use Assessment. Pat Irle (DOE) mentioned that there are potential uses in the area that are not addressed by existing facilities. Jim (IAC) responded that FERC required studies to focus on existing facilities and activities and the studies to date have captured that information. He further stated that Debby is trying to get at "potential", whether it is unmet current demands or future demands. The IAC recommends sources that will help determine that demand, such as the Statewide Comprehensive Outdoor Recreation Plan (SCORP) as well as the other city or county comprehensive plans. He concluded that the group is going to have to understand that there is going to be a little uncertainty in projecting out over a 20-year period. (Twenty-year projections were discussed and agreed by the working group.) David, city of Chelan, informed Debby that the city of Chelan Comprehensive Plan will be completed soon and should be added to the relevant planning documents and surveys. Gregg (PUD) added that when proposals are made, they would have to be consistent with the needs assessment and consistent with the comprehensive plans that have been developed for the area.

The working group reviewed the task list. "Task 3, Phone Survey" was discussed and because of the various surveys that have been conducted and the current study data, the group agreed there is not a need to pursue a phone survey. Debby explained that "Sections 4 and 5 of the report, which explain the supply and demand will be used in determining "Task 9, Determine Recreation Needs." Rich (LCRA) asked how she, as the consultant, would determine the potential need for the proposed recreational PMEs. Debby explained that she is responsible for looking at existing facilities and future trends and demands for the area and she is not looking at the specific PME's. Gregg (PUD) clarified that the purpose of the report is to show that what the PUD is doing for relicensing is consistent with the needs of area and are consistent with the comprehensive plans for the area. Jim (LCRA) requested that Debby clarify that the report is based on public facilities and not private. Gregg (PUD) stated that the inventory section will identify private facilities and marinas, but an analysis of private facilities is not part of the study scope.

In conclusion, Debby explained that the report would divide the lake into upper and lower zones. She asked the group for their approval. The working group discussed and decided that the report should use three zones; lower, middle, and upper. Debby also stated the report concentrates on projecting needs for the peak season but does not project for the shoulder season. However, per the request of the working group, she will project needs for the spring and fall shoulder seasons as well. A draft report will be completed by the next working group meeting scheduled for April 21, 2000.

PME Assessment Process (see Page 4)

Jim (IAC) recognizes two potential problems with the preliminary assessment tool. First, he does not feel the symbols are good ranking tools. For example, any recreational development that is permitted, designed and constructed properly is not going to have a net negative impact on the environment. Second, mandatory conditioning is going to give federal agencies that manage lands affected by the project mandatory conditioning over the license applicant. He feels that before going through the PMEs, the group should first know which conditions are negotiable versus those that are not.

Michelle (PUD) asked if anyone else had comments or thoughts about the PME assessment matrix or how it would be used. Working group members said they felt the matrix was an excellent tool that promotes discussion of the issues.

Additional changes to the horizontal axis of the matrix:

- "Dust in the Stehekin" was changed to a more general impact, "Air Quality".
- Remove "FERC Requirement" because if the group decides to pursue a measure, it may become a FERC requirement through the license anyway.
- In order to separate the horizontal categories that this working group feels comfortable assessing with the areas that are not within the group's expertise, Gregg added a blank column between "cultural" and "wildlife".

Action Items

- Michelle will schedule time in the next meeting to allow for a presentation by Jennifer Olsen-Fielder on trails.
- Debby Howe will have a draft completed of the Needs Analysis Study for working group review.
- Next meeting is scheduled for April 21, 2000.

Reference materials are posted on the web site, www.chelanpud.org/relicence. Please contact Rosana Sokolowski, (888) 663-8121, Extension 4290, if hard copies are required.

Sign-up Sheet	Lake Chelan Recreation Needs Forecast & Analysis working papers
Distribution List	List of comments received for the Socioeconomic Study

Potential Mitigation & Enhancement (PME) List

The working group reviewed the joint list of potential recreation and socioeconomic PME's and Gregg (PUD) made changes on the matrix as agreed. The matrix revisions are:

Socioeconomics:

Name:	**Section:**	**Suggested change:**	**Edit made:**
Bob Harris, Harris Marina	Socioeconomics		Added to comment column

Recreation:

Name:	**Section:**	**Suggested change:**	**Edit made:**
Barb Jackson, USFS	Camping	Add, cost share for annual O&M	Added to PME column
Barb Jackson, USFS	Camping	Add, cost share for up-lake campsites	"Including sanitation", etc.
Dan Moses, NPS	Camping	Build & construct Riddle Creek dock/campsite	"NPS Campsite Improvements" "Including sanitation", etc.
Lanny Arbruster, Manson Parks	Camping	Add, Old Mill Park Expansion	Added to PME column
Richard Uhlhorn, LCRA	Trail Use	Add, Develop trails in gorge	Added to PME column
Jennifer Olsen-Fielder, Public Trails	Trail Use	Add comments to Lower Lake Shoreline Trail System	Added "Northshore Pathway . . .
Dan Moses, NPS	Trail Use	Change "develop" NPS trails to "repair"	Repair trails along NPS lakeshore.
Joe Kastenholz, USFS	Trail Use	"USFS Trails, Refer to memo dated February 17, 2000"	Comment column
Bob Harris, Harris Marina	Boating	Add boat launch to "enhance marina in Chelan"	Enhance marina in Chelan and boat launch
Tim Flood, Lake Level Committee	Boating	Identify day/night use at Manson Bay	"Day & Night use" added to comment column
Richard Uhlhorn, LCRA	Boating		
Joe Kastenholz, USFS	Boating	Add, Cost-share for Fields Point boat launch	Added to PME column and "refer to Feb. 17, 2000 memo added to comment column
Dan Moses, NPS	Other		
David Sypher, City of Chelan	Other	Add "repair" to beachfront in Chelan	Repair and enhance beachfront in Chelan
David Sypher, City of Chelan	Other	Add, Riverwalk Park O&M agreements	Added to PME column
David Sypher, City of Chelan	Other	Add, Develop public access at lower end of lake	Added to PME column
Jennifer Olsen-Fielder, Public Trails	Other	Add, Road right-of-way and other public lands	Added to comment column
	Other	Add; comment to Provide regular reviews/chgs. in Rec. Plan	"Consider needs assessment every 6 years with FERC Form 80" added to
Ardis Bynum, USFS	Other	NPS & USFS should be considered in create opportunities for environment education/interpretation	NPS and USFS, etc. added to comment column

Memorandum

To: Lake Chelan Relicensing Files

From: Gregg Carrington

Date: February 23, 2000

Subject: Summary of discussions concerning lake levels

Chelan PUD and the Lake Chelan Lake Level Committee (LLC) have been meeting over the past year to discuss the impact of lake levels on the local economy. Chelan PUD and the LLC have worked together to collect information about the local economy (socioeconomic study) and to evaluate potential changes in project operation (operations modeling). The results of the socioeconomic investigation are contained in a report titled "*Lake Chelan Hydroelectric Project Socio-Economic Study Element*" - Final Report dated January 27, 2000. The results of the operation modeling are described below.

The socioeconomic report summarizes preliminary discussions (Proposal No. 2) between Chelan PUD and the LLC. Discussions have continued since the report was finalized and are documented herein (Proposal No. 4). This latest proposal supercedes the preliminary proposal described in the socioeconomic report.

Background

The Lake Chelan Lake Level Committee is comprised of local citizens with a common interest in enhancing the local economy. The LLC believes that the local economy is very strong during the months of June, July, August and September and could be improved during the shoulder seasons, particularly, the month of May. The LLC believes that higher lake levels could positively impact tourism in May through June and asked Chelan PUD if there was any way that the operation of the project could be changed so that lake levels could be predictably higher in May and June. If the lake levels were more predictable, the LLC felt that they could promote and develop facilities accordingly.

The LLC has participated in the Lake Chelan relicensing process since meetings started in 1998. In July 1999, Chelan PUD and the LLC began meeting to evaluate potential changes in project operation. The overall goal of both groups was to determine if there was a way to increase lake levels in May and June and minimize the impact on power generation. Meetings were held on July 1, 1999, August 16, 1999, January 6, 2000 and January 20, 2000.

Findings

Chelan PUD developed a computer simulation model to evaluate the effects of changes in project operation on lake levels, flows and power generation. The calibrated model or "base case" was used as the basis of comparison for all proposed changes in project operation. The computer model uses 43 years of daily average inflows for the period of 1952 through 1995. The computer model was calibrated using historical lake levels and power generation for the period of 1982 through 1995 (the current license term).

The computer model can estimate power generation for one or more years. Typically, the model estimates power generation using three years consisting of 1979 (dry), 1960 (average) and 1956 (wet). However, the model can also use the entire 43-year period of record.

A summary of the meetings and various proposals is provided below:

July 1, 1999 - Proposal No. 1 – The model calculated that on May 1, lake elevations of between 1090 and 1092 feet could be achieved approximately 90 percent of the time. Also, it resulted in a reduction in power generation of 2, 3 and 9 percent for the dry, average and wet years, respectively.

August 16, 1999 - Proposal No. 2 – The model calculated that on May 1, lake elevations of between 1087 and 1091 feet could be achieved approximately 95 percent of the time. In addition, the group evaluated the impact of lowering the lake by about half a foot in August and by about one foot per month (September through December). The net result was a reduction in power generation of 3 and 4 percent for the average and wet years and a gain of 2 percent for the dry year.

Chelan PUD estimated the average annual value of generation lost would be **$139,472 and $200,398** for the average and wet years, respectively. These costs were based on using the average cost of replacement power for 1996 and 1997. These costs were reported in the final-draft socioeconomic report dated August 1999. After the August 16 meeting, Chelan PUD estimated the average annual value of generation lost for the 43-year period of record would be **$106,000** (again, using average cost of replacement power for 1996 and 1997).

After the final-draft socioeconomic report was presented to the socioeconomic working group on September 16, 1999, the consultant was asked to conduct an additional survey of the local hotel/motel industry and to include the results in the final report.

At the same time, Chelan PUD updated the average cost of replacement power (using the average cost of replacement power for 2000 through 2010) and provided the results to the LLC and the consultant. For Proposal No. 2, Chelan PUD estimated the average annual value of generation lost for the 43-year period of record would be **$218,275**. These costs were reported in the final socioeconomic report dated January 27, 2000.

January 6, 2000 – Proposal No. 3 – The model calculated the same May 1 elevations as Proposal No. 1 and included the lower lake elevations in the fall contained in Proposal No. 2. The group also decided that the cost of replacement power for 2000 would be used (instead of the average for the period of 2000 through 2010). For Proposal No. 3, Chelan PUD estimated the average annual value of generation lost for the 43-year period of record would be **$372,136** (using average cost of replacement power for 2000).

January 20, 2000 – Proposal No. 4 - The model calculated that on May 1, lake elevations of between 1087 and 1090 feet could be achieved approximately 95 percent of the time and included the lower lake elevations in the fall contained in Proposal No. 2. The model also calculated that a June 1 elevation of 1095 could be achieved about 40 percent of the time, a level of 1094 approximately 63 percent of the time, and a level of 1093.5 about 93 percent of the time. For Proposal No. 4, Chelan PUD estimated a gain in the average annual value of generation for the 43-year period of record of **$10,444** (using average cost of replacement power for 2000.) A gain is only realized when lower lake elevations in the fall are included in the proposal. The estimated value is currently being reviewed by Chelan PUD power marketing group.

These results indicated that maintaining a reservoir elevation between 1087 and 1089 on May 1 was essential to minimizing the impact (loss) on power generation. Raising the lake above these levels resulted in more spill (lost generation) during the peak runoff period in June.