
PROJECT LANDS MANAGEMENT and SOCIOECONOMIC STUDY PLAN

Review-Copy

LAKE CHELAN HYDROELECTRIC PROJECT
FERC Project No. 637

~~December 23, 1998~~ January 27, 1999



Public Utility District No. 1 of Chelan County
Wenatchee, Washington

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PART 1: PROJECT LAND MANAGEMENT AND ECONOMICS

- SECTION 1: INTRODUCTION

- 1.1 General Description of the Region and Lake Chelan Project

The Lake Chelan Hydroelectric Project is located in approximately 32 miles north of the City of Wenatchee on the Chelan River. The 4.1-mile-long Chelan River (shortest river in Washington) flows from the lower end of the 50.4-mile-long Lake Chelan to the Columbia River. The project consists of a 40-foot-high concrete gravity dam, a 2.2-mile-long steel and concrete tunnel and a powerhouse located at the confluence of the Chelan and Columbia Rivers.

The State of Washington encompasses a wide range of geographic diversity, from the marine influenced ocean shores and Puget Sound, over the rugged Cascade Range to the rolling hills of central Washington, to the ancient mountain ranges of north central and eastern Washington. The Lake Chelan Hydroelectric Project is located on the Chelan River between two significantly different physiographic areas. In the Cascade Mountains to the west, metamorphosed sedimentary, volcanic, and granitic rock predominates. On the Columbia Plateau to the east, bedrock consists of vast, thick layers of basalt.

The climate in the project vicinity is dry and semi-arid, averaging about 10 inches of precipitation a year, with average high temperatures of 100 degrees (Fahrenheit) and lows of 0 degrees. In the immediate project vicinity (lower end of the lake), shrub-steppe vegetation habitats predominate (sage/bitter brush), with cottonwoods and willows typically occurring in riparian strips along the Lake and its tributaries. In the broader region surrounding the project, higher elevations and increased amounts of precipitation support softwood forest habitats.

The drainage area of the project is 924 square miles. The project reservoir is operated between water surface elevations of 1,100 feet (MSL) and 1,079 feet to ensure optimum utilization of the reservoir for power generation, fish and wildlife, recreation, water supply, and flood control purposes. The average maximum drawdown of the lake for the 44 years from 1952 to 1995 was 1084.2 feet. The reservoir has 677,400 acre-feet of usable storage above 1,079 feet. Of this, 612,400 acre-feet can be used for power generation and 65,000 acre-feet is available for irrigation **and domestic use.**

The annual drawdown of the lake begins in early October and the lowest lake elevation normally occurs in April. From May through June the lake refills due to spring runoff. The reservoir is maintained at or above elevation 1,098 feet from July 1 through September 30 of each year. Since the Project was originally licensed in 1926, the lake has never been drawn down to the minimum allowable elevation (1,079 feet). The lowest drawdown of record was 1,079.7 feet in 1970. That occurrence coincides with the lowest annual precipitation on record. Chelan PUD has never failed to refill the reservoir to elevation 1,098 feet by June 30.

Table 1-1: Historical Lake Averages

Month	Average Inflow (cfs)	Average Outflow (cfs)	Average Lake Elevation
January	757	2140	1089.7
February	813	2017	1087.3
March	993	1795	1085.8
April	2076	1204	1086.4
May	5293	1486	1090.6
June	6379	3427	1097.3
July	3598	3287	1099.7
August	1506	1677	1099.6
September	759	1586	1098.9
October	673	1935	1096.9
November	1002	2049	1094.9
December	883	2104	1092.8
Period of record of flows: 1952-1995			
Period of record for elevations: 1982-1995			

- 1.2 General Description of the Relicensing Process

Public Utility District No. 1 of Chelan County (Chelan PUD) owns and operates the Lake Chelan Hydroelectric Project located on the Chelan River in Chelan, Washington. Chelan PUD is permitted to operate the Hydro Project according to terms and conditions contained in an existing Federal Energy Regulatory Commission (FERC) license that was issued on May 12, 1981. The license expires in 2004.

The original license was granted for the present Lake Chelan Hydro Project in May, 1926, by the Federal Power Commission, now FERC. On May 12, 1981, FERC granted Chelan PUD a new 30-year license for the Hydro Project, retroactive to 1974 when the original 50-year license expired.

Chelan PUD intends to seek a new federal license to operate the Lake Chelan Hydro Project and has begun preparation for the process referred to as “relicensing”. The FERC relicensing process is based on laws and regulations that require years of extensive planning, including environmental studies, agency consensus and public involvement. The process to obtain a new license has changed considerably since the existing license was issued in 1981, primarily due to changes made to the Federal Power Act (FPA) as amended by the Electric Consumers Protection Act (ECPA) in 1986. ECPA mandates that FERC give equal consideration to the enhancement of existing environmental, recreation, fish, and wildlife resources affected by the project, to that of power and development resources, and to balance what are often competing uses of the water resources. ECPA also empowers the FERC to consider if a project is consistent with federal and state comprehensive plans.

Chelan PUD has requested and received approval from (FERC) to employ an Alternative Relicensing Process for the Lake Chelan Project, as allowed under FERC's Final Rule issued on October 29, 1997 (Docket No. RM95-16-000; Order No. 596). The Alternative Relicensing Process proposed by Chelan PUD is intended to expedite the licensing process by combining the pre-filing consultation and environmental review processes into a single process, and by improving and facilitating communications among the participants in the licensing process.

- 1.3 Need Statement

Project lands management along Lake Chelan have been recognized as a concern for some decades, and is of some concern to private landowners and to agencies responsible for land management. There are many organizations with land management responsibilities along Lake Chelan. These organizations include the U.S. Forest Service (which owns lands along two-thirds of the lake), the National Park Service, the County of Chelan, the Community of Manson, the City of Chelan, the **Yakama and** **Coleville Tribes** and others. As part of the issue identification process for relicensing, integration of the various land management plans was ranked as one of the top issues.

Several stakeholders have raised the issue of lands management around the lake in a variety of forms. In addition, the impact of project operations on the local economy (socioeconomic) has also been raised as a concern. This study presents two plans: the first plan addresses socioeconomic issues; the second, land management and permitting issues.

PART 2: ECONOMICS

- SECTION 2.1: INTRODUCTION

There are many factors that affect the local economy in and around Lake Chelan. Most businesses in the area are either directly or indirectly linked to Lake Chelan. The need to assess the existing socioeconomic resources of the area and the impact of project operation (reservoir fluctuations and low-cost power) on those resources has been identified.

- SECTION 2.2: STUDY GOAL

The primary goal of the study is to describe and document factors that influence tourism and recreation, **private and commercial development and agriculture** in the Lake Chelan area and to estimate the impact of project operations on these resources. A secondary benefit of the study will be to identify the potential for expansion of existing markets and the potential for developing new markets.

- SECTION 2.3: STUDY AREA

The study area will consist of the project boundary and communities immediately adjacent to the boundary and/or 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.

- SECTION 2.4: METHODOLOGY

A consultant specializing in socioeconomic analyses will conduct the study using commonly accepted economic practices. Methodologies proposed by the consultant will be presented to the Land Management Working Group.

- SECTION 2.5: TASK LIST

Task 1 - Introduction and kick-off meeting. The Land Management Working Group will meet with the consultant to review the goal, objectives and methodologies proposed for the study. The group will decide the most appropriate ways to provide input during the study and will offer

suggestions regarding who should be contacted. Members of the working group will provide relevant reports, surveys, contacts and other items that may be useful to the consultant.

Task 2 – Identify which facilities or activities are directly or indirectly impacted by project operations. An inventory of **water-based relevant** facilities and activities will be developed including, **but not limited to**:

- Accommodations
 - Hotel/Motel
 - Camping
- Water-based Facilities
 - Boat Launches
 - Marina
 - **Chelan Boat Company**
- Public Facilities
 - Parks
- Activities and Events
- Other
 - Water/sewer
 - Irrigation
 - Hydro Project

Task 3 – Identify current market status and potential market opportunities.

Task 3(a) - The current status of local economy will be defined using following information:

- Population and demographic characteristics
- Income characteristics
- Labor force characteristics
- Employment and unemployment rates
- New construction permits
- Retail sales trends
- Lodging sales trends
- Transportation indicators

Task 3(b) - Based on existing information, an overview of the local economy will be developed. The overview will:

- Document the historical trends focusing on what drives tourism and recreation in the Chelan area and how these activities have changed.
- define the local economy's position within the northwest tourism and recreation base
- describe current business patterns in the area as they relate to water-based tourism and recreation
- estimate the potential growth of these activities; and
- evaluate potential market opportunities (new and existing) by size and type of use.

Task 4 – Estimate impact of project operations and activities on local economy. Estimate the impact on facilities and activities (identified in Task 2) due to project operation and the impact of other Chelan PUD activities. Estimate the potential for revenue increases and/or decreases associated with the following factors:

- Local power rates
- Chelan PUD parks and recreation facilities
- Reservoir fluctuations (tourism and irrigation)
- Chelan PUD sponsored fish and wildlife programs
- Chelan PUD educational programs
- Chelan PUD employment base
- Chelan PUD employee participation in local organizations

The impact of local power rates will be determined by:

- Documenting the portion of the local economy that is dependent on low power rates
- Estimating the direct economic impact associated with changes in reservoir levels in terms of direct jobs and payroll

The impact of reservoir fluctuations will be determined by:

- Documenting the portion of local growth that may be dependent on water levels
- Summarizing results of recreational survey conducted by Chelan PUD as it relates to fluctuating water levels.
- Interview knowledgeable stakeholders associated with facilities or activities that are directly impacted by project operations.
- Summarizing case studies of fluctuating water levels in other similarly impacted areas.
- Assessing the seasonality of tourism in other competing areas and compare to Chelan.
- Estimating the direct economic impact associated with changes in reservoir levels in terms of direct jobs and payroll.
- Estimating reduced costs on irrigators associated with changes in reservoir levels.

Task 5 – Recommend economic strategy for Chelan area.

- SECTION 2.6: ANALYSIS AND REPORTING

All data will be summarized in the most concise and clear format possible. The final report will contain an executive summary section that can be directly imported into the Draft License Application. Supporting information and hard data will be provided in the appendices. All reports will be provided in electronic format for importing into Chelan PUD's database and ultimately into the license application. All reports styles will be consistent with Chelan PUD's writing style guidelines (to be provided).

- SECTION 2.7: STAFFING AND EQUIPMENT NEEDS

To be provided by consultant.

- SECTION 2.8: SCHEDULE

The study will begin in April 1999 and a draft report will be available in August 1999.

- SECTION 2.9: BUDGET

To be provided by consultant.

PART 3: LAND MANAGEMENT AND PERMITTING

- SECTION 3.1: INTRODUCTION

- 3.1.1 Overview of Existing Comprehensive Land Management Plans

Local land management is addressed through several comprehensive planning documents and implementing regulations. Local governments have recently changed their planning processes to be consistent with Washington's Growth Management Act. The Act requires specific planning elements be addressed by each jurisdiction and that implementing regulations be consistent and concurrent with the plan.

The City of Chelan has adopted its comprehensive plan and implementing regulations. They have established an urban growth boundary, as well as critical areas including aquifer recharge areas, frequently flooded areas, wetlands and floodplains, geological hazard areas, and fish and wildlife areas. They also have a Shoreline Master Program addressing shoreline development waterward of the 1,100-foot elevation and within a 200-foot buffer zone upland of this elevation.

~~Chelan County land management requirements cover all non-federal areas in the Lake Chelan area outside the Chelan city limits. Chelan County utilizes the Chelan-Entiat Comprehensive Plan as its primary planning tool. The county is in the process of completing requirements of the Growth Management Act. They have adopted interim urban growth boundaries for Chelan (county must affirm city designated boundary) and Manson and has some critical area ordinances. Currently the county has ordinances for fish and wildlife, aquifer recharge lands, riparian zones and wetlands, geological hazard areas, commercial agriculture resource lands, forest resource lands, and mineral resource lands. The County also has a Shoreline Master Program addressing shoreline development.~~ Chelan County currently utilizes the Chelan-Entiat Comprehensive Plan and the Lower Lake Chelan Basin Comprehensive Plan for guiding growth and development in the Lake Chelan area. The County is in the process of completing requirements of the Growth Management Act, which include the development and adoption of new comprehensive plans for the Lake Chelan area. They have adopted interim urban growth boundaries for the City of Chelan and the un-incorporated community of Manson. Chelan County has also adopted interim regulations for critical areas and resource lands. Critical areas include fish and wildlife habitat conservation areas, aquifer recharge areas, frequently flooded areas, wetlands and geologically hazardous areas. Resource lands include agricultural, forest, and mineral resource lands of long-term commercial significance. The County also has a Shoreline Master Program addressing Shoreline Development.

~~***Insert description of federal LMP***~~ **3.1.1.1 Federal Land Management Plans**

–Shoreline development on federal lands within the Project boundary is extremely limited. Such uses include erosion-protection measures, **recreational facility development, and resource protection or enhancement measures.** ~~and docks and piers to access campgrounds.~~

National Park Service:

The General Management Plan (GMP) completed and approved in June of 1995 for Lake Chelan National Recreation Area (NRA) will guide the management of the NRA for the next 10 to 15 years. The purpose of the GMP, and its associated implementation plans, is to manage visitor use, natural and cultural resources, development and operation of the NRA according to the enabling legislation and other laws and regulations affecting management of the NRA.

US Forest Service:

*****Insert description*****

- 3.1.2 Overview of Current Permitting Programs (Dock, etc.)

Chelan County and the City of Chelan are participating in a program that has been developed to reduce the number of forms needed in complying with environmental laws that have a redundant purpose and authority. The process uses a Joint Aquatic Resource Permit Application (JARPA). One form can now be used to process any and all permits for:

1. Shoreline Substantial Development, Variance, or Conditional Use Permit issued by local government,
2. Temporary Modification of Water Quality Criteria issued by the Washington Department of Ecology (Ecology),
3. Hydraulic Project Approval issued by the Washington Department of Fish & Wildlife (WDFW),
4. Section 401 Water Quality Certification issued by Ecology, and
5. Corps of Engineers Section 404 and Section 10 Permits.

All actions undertaken are subject to Washington's State Environmental Policy Act (SEPA). SEPA is similar to the National Environmental Policy Act (NEPA). The Act stipulates that compliance with NEPA will be considered adequate compliance with SEPA.

Chelan PUD uses a permit system to assess and track uses within the project boundary. Because of the multitude of regulatory requirements established by local, state and federal land management entities, development below elevation 1,100 feet is generally limited to irrigation water intakes, piers, floating docks, buoys, boat lifts, and shoreline protective measures **and fish habitat and riparian enhancement measures.** Chelan PUD's objective is to assure consistency with Project purposes including safety, environmental concerns, and aesthetics.

- SECTION 3.2: STUDY GOAL

The goal of the study is to provide an overview of land management activities within the study area and to define Chelan PUD's future role in these activities **and consistency**.

- SECTION 3.3: STUDY AREA

The study area will consist of the project boundary. 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.

- SECTION 3.4: METHODOLOGY

Chelan PUD will be summarizing existing land management plans provided by the managing agencies. Chelan PUD's future role in permitting activities will be based on input from the Land Management Working group.

- SECTION 3.5: TASK LIST

Task 1 - Literature Review. Chelan PUD will collect, compile and summarize existing land management plans for lands within the study area. Chelan PUD will identify inconsistencies between the various plans for the Land Management Working Group to consider. In addition, Chelan PUD will provide an overview of Chelan PUD's past practices regarding permitting activities.

Task 2 - Inventory of shoreline development with emphasis on permitted structures and facilities (docks, piers and intakes). Inconsistencies will be identified and marked.

Task 3 – Mapping of shoreline development. Shoreline development will be mapped using a Global Positioning System (GPS) for direct input in Chelan PUD's GIS system. Shoreline development maps will be made available for all working groups as protection, mitigation and enhancement (PME) measures are developed.

Task 4 – Determine Chelan PUD's future role in land management activities along Lake Chelan. Chelan PUD will work with the Land Management Group to define role.

Task 5 – Summary report. All findings and recommendations will be provided in a summary report.

- SECTION 3.6: ANALYSIS AND REPORTING

All data and mapping will be summarized in the most concise and clear format possible. The final report will contain an executive summary section that can be directly imported into the Draft License Application for the project. Supporting information and maps will be provided in the appendices. All reports should also be provided in electronic format for importing into Soft Solutions and ultimately into the license application. All reports styles should be consistent with Chelan PUD's writing style guidelines (to be provided).

- SECTION 3.7: STAFFING AND EQUIPMENT NEEDS

Chelan PUD will provide the necessary staff and/or consultants required to complete work.

- SECTION 3.8: SCHEDULE

The work will begin April 1999 and be completed by August 1999.

- SECTION 3.9: BUDGET

To be provided by consultant.

APPENDIX A

- Evaluation of issues addressed

The table below lists all the comments from various groups thought to be relevant to the **shoreline erosion control land management and socioeconomics** study. The last column is an evaluation of whether each issue will be addressed by the study as proposed. Where the word “indirectly” is used, it is meant to indicate that the study will provide some information useful in addressing the issue, but will not by itself provide all the necessary information. Where “no” is used, it is meant to indicate that the study, as proposed, is not expected to provide information that contributes substantially to addressing the issue. **Whenever the term “other” is used, it means that another study is addressing the issue.**

<u>Issue</u>	<u>Group</u>	<u>Rank</u>	<u>Addressed</u>
Shoreline issues: protection of shoreline	LARC	1/149	Other
Planning: coordination and communication of this and other public planning	LARC	2/149	Yes
Economics: long-term ramifications, who maintains/funded how?	LARC	5/149	No
Planning: integrated resource management as it relates to land use	LARC	7/149	Yes
Planning: consideration into distant future	LARC	8/149	Yes
Planning: integrate with other resource objectives	LARC	13/149	Yes
Planning: development of shoreline	LARC	14/149	Yes
Planning: consider changing demographics	LARC	19/149	Yes
Planning: limits of acceptable change	LARC	20/149	Indirectly
Economics: must be economically viable to PUD	LARC	31/149	Yes
Land Use: spawning habitat, disruption and access to	LARC	39/149	Other
Erosion: loss of land	LARC	50/149	Other
Planning: anticipate future pressure from Puget Sound, etc.	LARC	54/149	Yes
Planning: land conversions, lands that are changed for alternate uses (affects habitat)	LARC	55/149	Yes
Planning: seasonal flow augmentation (t/e species)(bypass reach and Columbia River)	LARC	56/149	Other
Economics: impact of pool changes on fishing (tourism)			Yes
Erosion: impacts on riparian	LARC	61/149	Other
Recreation: trails and coordinated trails planning	LARC	63/149	Other
Economics: upper lake recreation, distant draw downlake more local		65/149	Indirectly

<u>Issue</u>	<u>Group</u>	<u>Rank</u>	<u>Addressed</u>
Shoreline issues: retaining wall encroachment and boat docks	LARC	66/149	Yes
Bypass Reach/recreation: appropriate minimum flows	LARC	67/149	Other
Economics: fiscal needs of affected agencies	LARC	69/149	No
Economics: lack of year-round economic base	LARC	74/149	Yes
Planning: archeological (includes traditional cultural uses)	LARC	82/149	Other
Planning: disruptions of aesthetics	LARC	83/149	Other
Commercial Impacts: aesthetics	LARC	84/149	Other
Land Use: vegetation manipulation	LARC	95/149	Other
Economics: can this be done in a way that generates new jobs for our people?	LARC	96/149	Yes
Recreation: shoreline casements	LARC	126/149	No
Planning: irrigation projects	LARC	141/149	Yes
Land development control	Fish	5/119	Yes
Land development - affecting water quality, fisheries:	Fish	26/119	Other
Comprehensive land management plan	Fish	27/119	Yes
Land development – affecting water quality, fisheries: Boats/people	Fish	56/119	Yes
Woody debris:	Fish	77/119	No
Water rights	Fish	82/119	No
Land development - affecting water quality, fisheries: Agricultural runoff	Fish	86/119	Other
Land development - affecting water quality, fisheries: Domestic use	Fish	87/119	Other
Timing of the drawdowns: no bath tub ring during high visit season	Public	4/75	Yes
Integrated resource management as it relates to land use	Public	5/75	Yes
Economics of changing drawdown times	Public	11/75	Yes
Partnership with PUD agency to agency to share expertise, such as state grants, street-ends, others	Public	12/75	Yes
Planning: development of shoreline	Public	17/75	Yes
Debris	Public	19/75	No
Impact of project operation on economic base	Public	26/75	Yes
Loss of soil/land	Public	27/75	Other
Lack of year-round economic base	Public	29/75	Yes
Coordination and communication of this and other	Public	33/75	Yes

<u>Issue</u>	<u>Group</u>	<u>Rank</u>	<u>Addressed</u>
public planning			
Shoreline access (undercut banks)	Public	41/75	Other
Irrigation and pumping capabilities	Public	42/75	Yes
Centralization of information	Public	44/75	Yes
Long-term ramifications, who maintains, funded how	Public	47/75	No
Erosion during high water	Public	48/75	Other
Shoreline erosion caused by raising of the lake	Public	49/75	Other
Structural damage, wear and tear on docks, special docks required	Public	50/75	Other
Bio-engineering, rip rap, erosion control	Public	51/75	Other
Stehekin aesthetics regarding the mud flats	Public	56/75	Other
Navigation on Stehekin River	Public	59/75	No
Aesthetics - drawdowns ugly	Public	62/75	Other
Land development control	Public	65/75	Yes
Must be economically viable to PUD	Public	68/75	Yes