Recreation Opportunity Study
And
Evaluation of High Water Availability for Recreation Releases
Nantahala River Project
FERC # 2692
East Fork and West Fork Tuckasegee River Projects
FERC #'s 2698, and 2686
Projects with Limited Storage Capacity
Dillsboro, Bryson, Franklin, and Mission Projects
FERC #'s 2602, 2601, 2603, 2619

Introduction

Duke Power Nantahala Area, a Division of Duke Energy Corporation (Duke) is in the process of relicensing its hydroelectric projects with the Federal Energy Regulatory Commission (FERC). In this report Duke presents historical data of possible interest to recreation interest groups about the Nantahala Area Hydroelectric Projects and stream flow information for the Nantahala River and the Tuckasegee River Projects (East Fork and West Fork). This information, information from the Nantahala and Tuckasegee instream flow studies for angling and boating, and water quality data (primarily temperature) will be utilized in a separate study report (Impacts of Water Releases on Recreational Evaluation) to evaluate the effect of varying water release levels and schedules on downstream recreation for angling and boating.

Study Area

The geographical study area includes all the Nantahala Area Hydroelectric Projects on the Nantahala (Nantahala Project), Tuckasegee (East Fork, West Fork, and Dillsboro Projects), Oconoluftee (Bryson Project), Little Tennessee (Franklin Project), and Hiwassee (Mission Project) Rivers. These areas have been briefly described in other reports prepared during this relicensing process including the Tuckasegee River Paddling Recreational Instream Flow Study (2002), the Tuckasegee River Angling Flow Study (2002), the Nantahala River Paddling Recreational Instream Flow Study (2002), the Nantahala River Angling Flow Study (2002), and the Report on High Water Availability for Recreation and Recreation Opportunity Studies for the Dillsboro, Bryson, Franklin, and Mission Projects (2002).

Methods

Data was compiled from historical records of Nantahala Power & Light (now Duke Power Nantahala Area) and current relicensing studies.

Results

The results are provided in the following tables.

Table 1 provides basic parameters for the Nantahala, and Tuckasegee (East Fork and West Fork) River Hydroelectric Projects. The Tuckasegee is divided into the West Fork Project – Thorpe (Glenville) and Tuckasegee Developments – and the East Fork Project –

Tennessee Creek (Wolf Creek and Tennessee Creek Lakes), Bear Creek, and Cedar Cliff Developments.

Table 2 provides basic parameters for the projects with limited storage capacity – Dillsboro, Bryson, Franklin, and Mission Projects.

Figure 1 provides a diagrammatic overview of the relationships of the projects with elevations shown. A similar diagram was provided in the Nantahala Power and Light Hydroelectric Projects FERC Relicensing Preliminary Meeting Handbook (November, 1999).

Figures 2, 3, and 4 provide the Turbine Discharge Curves for the plants that control flows into the river channels by generation – Nantahala, Thorpe, and Cedar Cliff.

Tables 3, 4, 5, 6, and 7 provide ten and twenty year reviews of lake elevation data for Lake Glenville, Tennessee Creek, Bear Creek, Cedar Cliff, and Nantahala Lakes.

Table 8 provides historical steam flow data for the Tuckasegee River at the Tuckasegee Development (Little Lake Glenville) on the West Fork, Cedar Cliff Development on the East fork, and at Dillsboro on the main stem.

Table 9 provides historical stream flow data for the Tuckasegee River at the Thorpe Development (Lake Glenville) on the West Fork and the Tennessee Creek Development on the East Fork (Wolf and Tennessee Lakes)

Table 10 provides historical stream flow data for the Nantahala River at Nantahala Lake and the by-pass section at 0.5 miles upstream of the confluence with the release channel from the Nantahala Powerhouse.

Discussion

This information has been used in the development of study plans for angling and paddling recreation studies on the Tuckasegee and Nantahala Rivers. Much of this information is included within the CHEOPS Model that stakeholder teams utilize to look at trade-offs among various scenarios and interests as well as ultimately working towards an equitable settlement agreement.

In addition, the information in this report, the information from the recreation studies, the river flow travel time data from the Fish Instream Flow Study (Instream Flow Incremental Methodology Study - IFIM Study), and the Temperature and Dissolved Oxygen Survey Study have been used by private angling, commercial angling, private boating and commercial boating interests to develop water release and use parameters for the Tuckasegee and Nantahala Rivers that meet the major interests of these interest groups. This will be fully described in a separate report (The Impacts of Water Releases on Recreational Evaluation, 2002).

All of the above information will continue to be used by these recreational interest groups as they look at the trade-offs of various water budget scenarios with other stakeholders with interests in stream flow for habitat, power generation, and lake levels.

Relicensing Reports Cited:

Tuckasegee River Paddling Recreational Instream Flow Study; East Fork, West Fork and Dillsboro Hydroelectric Projects (FERC #'s 2698, 2686, 2602); August 2002.

Nantahala River Paddling Recreational Instream Flow Study; Nantahala Hydroelectric Project (FERC # 2692); August 2002.

Nantahala River Angling Flow Study; Nantahala Hydroelectric Project (FERC # 2692); July 2002.

Tuckasegee River Angling Flow Study; East Fork, West Fork and Dillsboro Hydroelectric Projects (FERC #'s 2698, 2686, 2602); July 2002.

Nantahala Power and Light Hydroeclectric Projects FERC Relicensing; Preliminary Meeting Handbook; November 17, 1999.

Historical Stream Flow Series Evaluation Study; November 2002.

Temperature and Dissolved Oxygen Survey Study; October 2002.

Fish Instream Flow Study (Instream Flow Incremental Methodology - IFIM) Study; November 2002

Report on High Water Availability for Recreation and Recreation Opportunity Studies for the Dillsboro, Bryson, Franklin, and Mission Projects; April 2002.