

VII. OPERATING PLAN FOR 1998-99

Guidelines and Rule Curves Regulation under ESA

Each year the regulation of the Columbia River Basin reservoir system is unique in many details but similar in seasonal characteristics. While most of this annual report describes the unique features of the past year's operation, this chapter briefly describes the general operating plan for the coming water year for major reservoirs.

A. GUIDELINES AND RULE CURVES

Seasonal operational guidelines were established either on a permanent basis in preconstruction documents or were developed, based on studies of historical stream flows that were adjusted for current conditions. These guidelines for the major reservoirs are given in [Table 28](#). They were established on a continuing basis and are not changed each year, whereas other guidelines are recomputed annually or seasonally to meet varying conditions. These operating guidelines, or "rule curves," give a schedule of reservoir elevations that are desirable and provide guidance in meeting project functions: to assure adequate space is available for flood control, to assure adequate water to meet electric power demands by using storage and natural flow efficiently, and also to reasonably assure reservoir refill. The guidelines shown do not reflect special regulations under the ESA for fisheries.

The PNCA provides that prior to the start of each operating year (from August 1 through July 31), a reservoir operating and storage schedule be developed to provide the optimum firm energy load carrying capability (FELCC) for each reservoir in the coordinated system. System regulation studies are to define reservoir elevations as critical rule curves (CRC) on a monthly basis to ensure that adequate firm energy will be available from the coordinated system if there is a recurrence of any critical flow conditions.

Assured Refill Curves (ARC), consisting of monthly reservoir elevations, are also determined to limit reservoir drafts for secondary energy and guide the refill of reservoirs. These curves provide a high degree of assurance that a reservoir will refill by the end of the operating year. In some cases, refill target elevations are recomputed each month during the refill season based on the latest snowpack and precipitation measurements, and these are called variable energy content curves (VECC).

Each individual reservoir has several sets of curves. A listing of either monthly upper rule curve or flood control rule curve elevations, monthly critical rule curve elevations, and monthly base energy content curve elevations is given for some major reservoirs in [Table 29](#). The rule curves are based on the 1936-37 Water Year. The values in this table indicate a range of mid-month and month-end elevations which are used as a guide in regulating individual reservoirs, as well as the total reservoir system given a recurrence of the 1936-37 water condition. Obviously, operations must be flexible and deviations must be made from exact planned elevations to provide for changes in weather, inflows, load demands, plant outages, usual general seasonal considerations, and changing social priorities.

B. SPECIAL REGULATIONS UNDER ESA

Under the Endangered Species Act (ESA) two BiOps were prepared, one for the white sturgeon and the other for Snake River salmon. The sturgeon BiOp focuses on Libby's operation and attempts to replicate the pre-project spring runoff flow regimen. On the other hand, the BiOp for salmon focuses on increasing spring and summer flow to assist juvenile downstream migration. To accomplish this, flow targets for the lower Columbia River at McNary Dam and the Snake River at Lower Granite Dam were developed, based on the forecasted runoff volume. Spring flow targets at McNary range from 220 to 260 kcfs, and the summer target is 200 kcfs. While at Lower Granite, spring flow targets range from 85 to 100 kcfs, and in the spring range from 50 to 55 kcfs.

Libby operates under the sturgeon and salmon BiOp which requires the project to be on minimum flow unless flood control evacuation requires a higher release. However, modifications have been made to project operations because the IJC order or flood control requirements cannot be violated. The special ESA operational guidelines are:

- ! April 15-30: Increase discharge to attain a flow of 15 kcfs at Bonners Ferry.
- ! May 1-19: Maintain a flow of 15 kcfs at Bonners Ferry.
- ! May 20-June 30: Increase discharge to support a flow of 35 kcfs at Bonners Ferry, without spilling.
- ! July 1-21: Decrease discharge to maintain a flow of 11 kcfs at Bonners Ferry.
- ! July 22-31: Decrease project discharge to four kcfs minimum flow.
- ! August 1-31: Increase project discharge to support McNary flow target, without spilling, if the reservoir is above 2439 ft.

The salmon BiOp at Hungry Horse Dam requires the project to be at its flood control level on April 20 and to draft to support the McNary flow target in August. Minimum elevation the reservoir would be drafted to, in order to support the flow target, is to between 3550 ft and 3540 ft, for August 15 and August 31, respectively.

There is a three-year test operation at Albeni Falls which is intended to maintain the reservoir at 2055 ft during the winter through April 29. The test operation will be concluded in April 1999.

Grand Coulee salmon BiOp operation requires the reservoir to be at flood control elevation on April 20 and support McNary flow target through August 31. A reservoir draft limit of 1280 ft was used to support target flows.

To support the salmon BiOp, Dworshak was operated on minimum flow unless a higher release is required for flood control evacuation and supported Lower Granite target flows through August 31. The reservoir augmented target flows down to 1520 ft while not exceeding a discharge of 14.0 kcfs.