



### **How are river and reservoir operations for fish reflected when establishing BPA rates?**

BPA uses a hydro-system computer model (HYDSIM) to identify the period-by-period average energy production we can expect in 50 water conditions while operating to fish criteria for each year of the rate case period.

- Energy production is compared to our estimated firm load period-by-period.
- Deficits cause the purchase of secondary energy and surplus can be sold.
- The resulting revenue (Net Secondary Energy Revenue) is used as input to establish the level of our rates.
- ***It is important to note that in the rate process there is no line-item expense for fish operations as there is for the Integrated Program.***

### **What are fish operations criteria?**

- **Reservoir elevation objectives**
- **Juvenile bypass spill objectives**
- **Flow augmentation targets**



## Sample Reservoir Operations Criteria

### Grand Coulee

During the **September through December** period, do not draft below 1280, 1280, 1275 and 1265 feet respectively;

From **January through March**, operate above Biological Rule Curve. (The Biological Rule Curve is calculated using assumed inflows which are exceeded 85 percent of the time, perfect foreknowledge of the minimum outflow, and the requirement to be at VARQ flood control elevation on April 10.);

When the July 1 April-August volume forecast at The Dalles is greater than 92 MAF, operate as low as 1285 and 1280 feet in **July and August**, respectively and when the volume forecast is 92 MAF or less, operate as low as 1285 and 1278 feet in July and August, respectively, to meet the McNary flow augmentation targets.

At-site minimum flow is 50,000 cfs for peaking purposes.



# FISH OPERATIONS IN THE RATE PROCESS

## Flow Augmentation Targets

Flow targets are established for:

- Priest Rapids (based on Grand Coulee outflow for BPA's purposes),
- Lower Granite,
- McNary and,
- Bonneville dams.
- Modeling criteria are established based on the desired flow volume, timeframe and specific seasonal runoff forecasts.

## Sample Spill Criteria

HRLY/DLY SPILL CRITERIA FOR 03BIOP2004 STUDY					
	Spill	Instant. Spill Cap (120% TDG)	Min Turb	Days	Hour Ending
LWG	19 kcfs	47 kcfs	11.5 kcfs	Apr 3 - Jun 20;	All Hours
LGS	120% TDG	45 kcfs	11.5 kcfs	Apr 3 - Jun 20	1900 - 0600
LMN	45% or 50% of flow	40 kcfs	11.5 kcfs	Apr 3 - Jun 20	All hours
IHR	20 kcfs	100 kcfs	8.5 kcfs	Apr 3 - Aug 31	All hours
MCN	120% TDG	185 kcfs	50 kcfs	Apr 10 - Jun 30	1900 - 0600
JDA	60% flow	160 kcfs	50 kcfs	Apr 18 - Jun 7	1900 - 0600 (alt. daily)
	45% flow			Apr 18 - Jun 7	1900 - 0600
	60% flow			Apr 10 - 17; Jun 8 - Aug 31	1900 - 0600 (alt. daily)
	30% flow			Apr 10- 17; Jun 8 - Aug 31	All hours
TDA	40% flow	140 kcfs	50 kcfs	Apr 10 - Aug 31	All hours
BON	50 kcfs or 75 kcfs	150 kcfs	30 kcfs	March 4 days	All hours
	120% TDG (really 140 kcfs)			Apr 10 - Aug 31	1900 - 0600
	120 kcfs			Apr 10 - Aug 31	0600-1900



## FISH OPERATIONS IN THE RATE PROCESS

### **How are the fish operations criteria for rate case modeling established?**

- BPA is constantly updating these assumptions as new information becomes available from agencies and forums around the region.
- At a point in time, BPA will adopt the assumptions to be included in the rate case hydroregs (plural since operations for fish are often different for each year of the rate case period) based on the best information available at that time.
- This is necessary to have the energy production information available in time to fit the rate case schedule.

### **Are there currently uncertainties regarding fish operations criteria during the rate case period?**

Yes, several.

- Installation timing and operating requirements for removable spillway weirs (RSWs) and other surface bypass improvements are not set yet. RSWs or surface passage improvements are planned at Ice Harbor, Lower Monumental, The Dalles, McNary and Little Goose between 2005 and 2010 and may alter river operations.
- A proposed summer transportation test requiring additional spill at projects that collect fish may begin in 2007 or 2008. The test itself and adaptive management decisions that might be made in response to research results may affect river operations as well.