



Washington  
Department of  
**FISH and  
WILDLIFE**

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**McNary Temperature Report # 7  
August 4 - 10, 2000**

A total of 283,710 juvenile salmonids passed through the McNary Juvenile Fish Facility (JFF) this week. Juvenile fall chinook collection at the facility is well above the 1999 and 5-year average. Daily flows averaged 152.6 kcfs (turbine 146.5 kcfs, spill 1.4 kcfs). There were 6 hours of spill this week. Fish continue to arrive and pass through the project in good condition. For this report period, descaling averaged 2.3%, system mortality was 2.1% (range 1.0 – 3.9), and sample tank mortality was 2.6% (range 1.4 – 4.4).

The facility began collection for transportation on June 20. Barging has concluded for the 2000 season as of August 7. Trucking began on August 8, with 2 trucks every day. System mortality provides better data on total mortality. System mortality should be consistent as raceways are being loaded every day.

Table 1: Collection, mortality, discharge, air temperature, and wind velocity at McNary Dam.

Date	Collection	Mortality		Discharge			Air Temp		Wind Speed	
		System	Sample	Total	Turbine	Spill	High	Low	Avg	Max
04-Aug-00	58,700	2.0%	4.4%	155.1	150.4	0.0	95	69	5	21
05-Aug-00	37,700	3.9%	2.7%	148.5	143.8	0.0	95	69	4	14
06-Aug-00	29,400	1.0%	2.4%	140.2	135.5	0.0	94	71	5	23
07-Aug-00	23,950	3.2%	3.1%	144.6	139.9	0.0	96	69	4	14
08-Aug-00	35,110	1.1%	1.4%	158.7	154.0	0.0	100	66	3	15
09-Aug-00	39,100	1.7%	2.9%	165.1	150.4	9.9	98	70	4	27
10-Aug-00	59,750	1.4%	1.4%	156.1	151.4	0.0	89	67	6	31
<b>Average</b>	40,530	2.1%	2.6%	152.6	146.5	1.4	95	68	4	21

Peak daily air temperatures averaged 95<sup>0</sup>F (range 89<sup>0</sup>F – 100<sup>0</sup>F). Winds were variable during the week and averaged 4 mph. Even though afternoon temperatures have remained warm, water temperatures are remaining constant throughout this report week. Water temperatures at the separator averaged 71<sup>0</sup>F for the week with a maximum temperature of 71.7<sup>0</sup>F on August 9.

Table 2. Raceway, tailwater, collection channel, and separator temperatures

	Daily Avg				Daily Max			
	Raceway	Dock	Channel	Separator	Raceway	Dock	Channel	Separator
04-Aug-00	70.9	70.3	71.1	71.0	71.2	70.9	71.4	71.3
05-Aug-00	70.6	70.1	71.1	70.9	71.5	70.6	72.0	71.6
06-Aug-00	71.0	70.2	71.3	70.9	71.5	70.6	71.7	71.3
07-Aug-00	71.0	70.2	71.3	70.9	71.5	70.6	72.0	71.3
08-Aug-00	71.6	70.5	72.0	71.6	72.7	71.5	73.2	72.8
09-Aug-00	71.7	70.6	71.8	71.7	72.7	71.5	72.9	72.5
10-Aug-00	71.3	70.5	71.4	71.3	71.8	71.2	72.3	72.2
<b>Average</b>	71.2	70.4	71.4	71.2	71.9	71.0	72.2	71.9

Figure 1. Wind speed, air temperature, and forebay water temperature at the McNary Project.

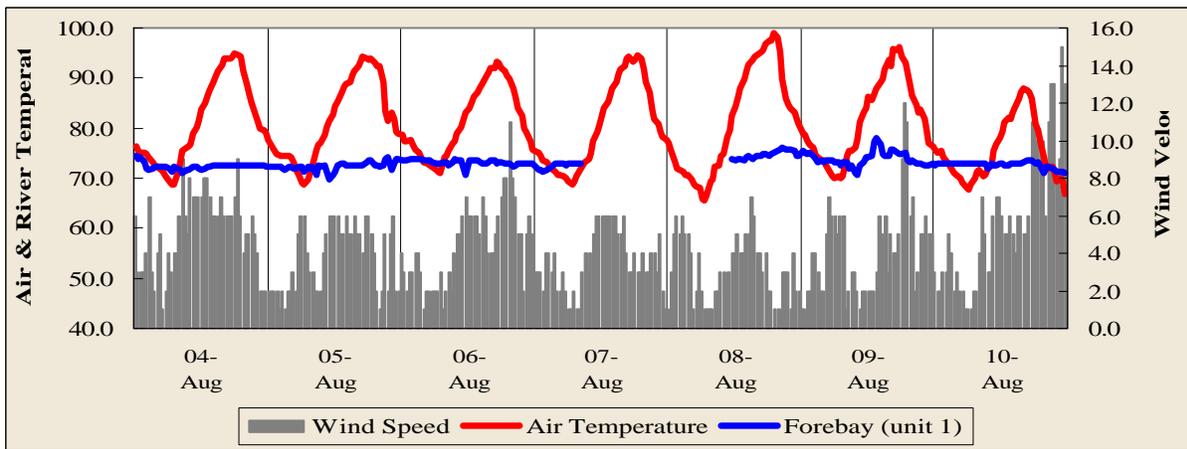


Figure 2. Forebay water temperatures at the McNary Project.

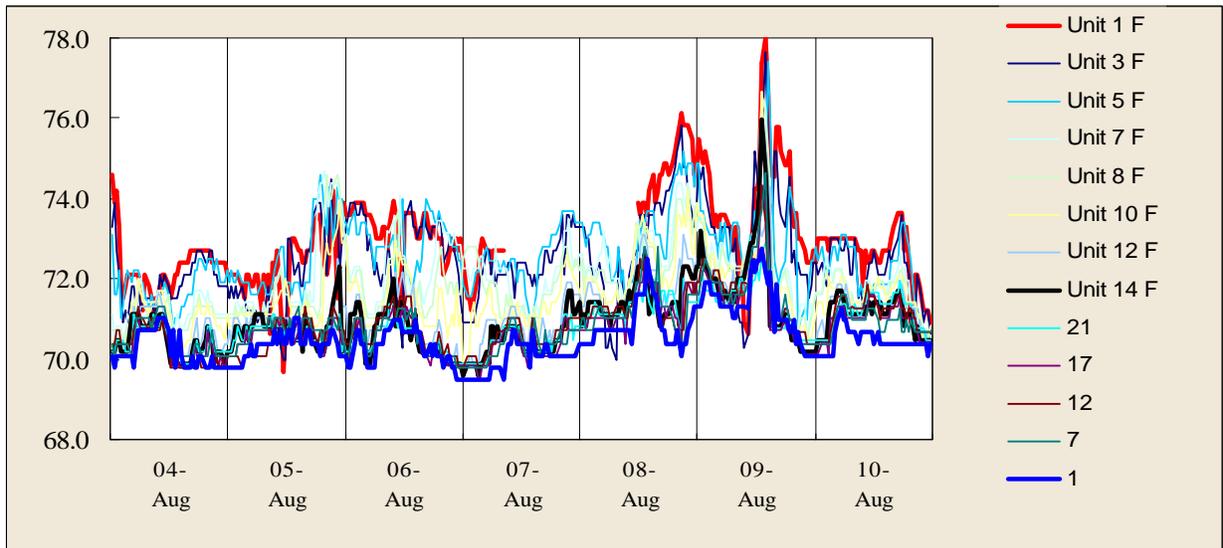
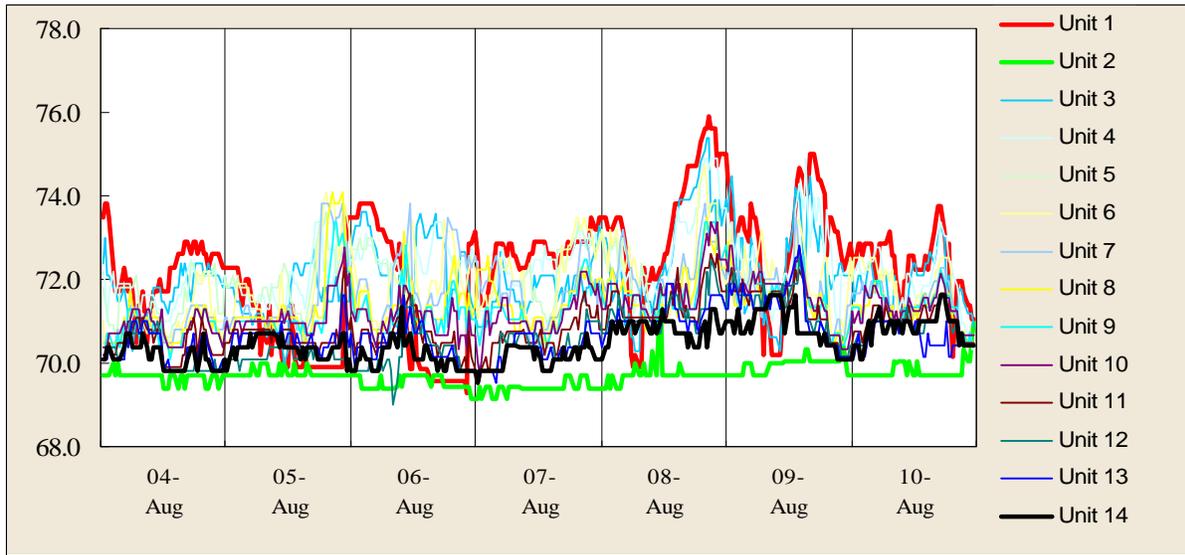


Figure 3. Gatewell water temperatures at the McNary Project.

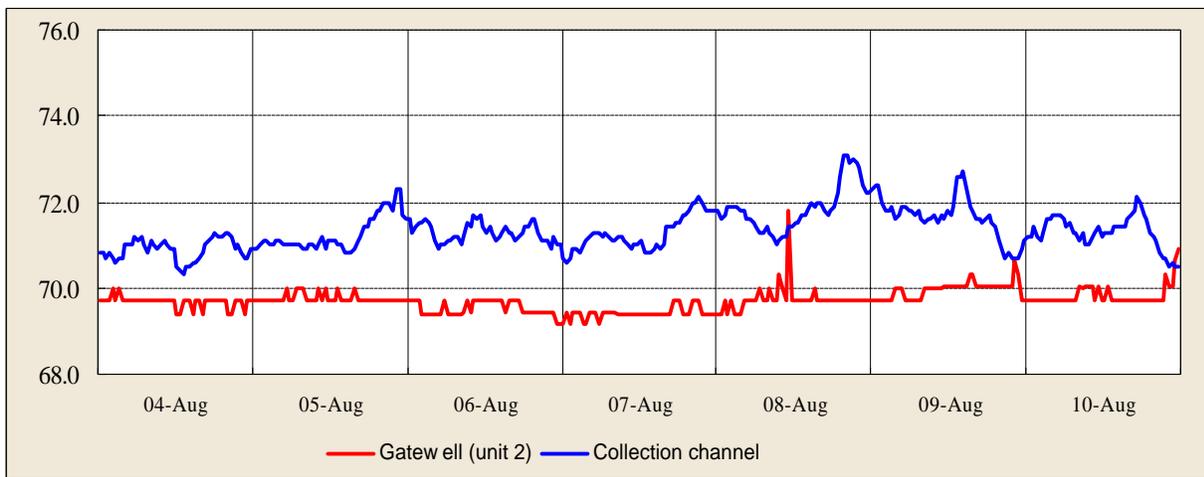
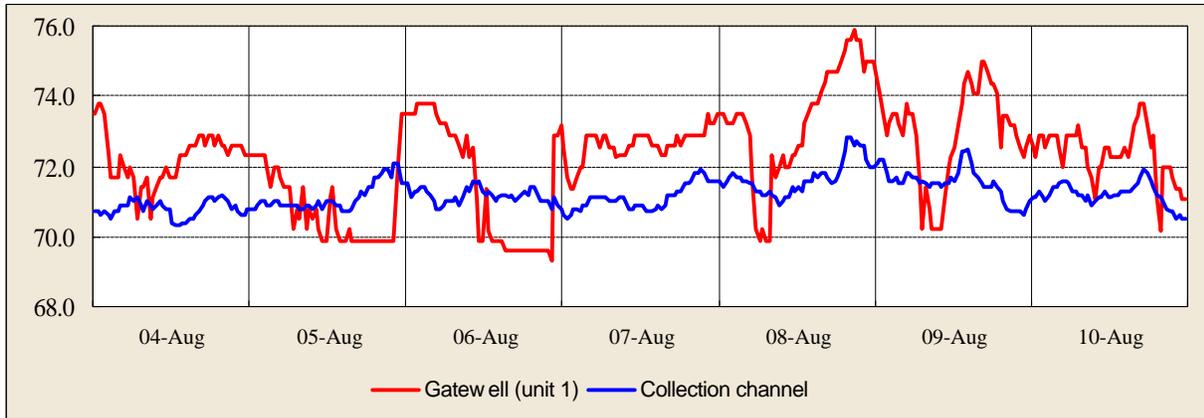


Forebay water temperatures peaked on August 9 at 1:30p.m. (78.0°F), in front of unit 1. Gatewell water temperatures averaged 71.3°F this week and peaked at 75.9°F in turbine unit 1 on August 8 at 8:30 p.m.

Temperature gradients occur occasionally between the water in the turbine unit gatewell and the adjacent location in the collection channel. Fish guided into the turbine unit gatewells pass directly through these temperature gradients. These gradients typically occur in the late afternoon, primarily in the southernmost units. The maximum gradient during this weekly period was 3.6°F on August 9 at 4:30p.m. at turbine unit 1. There were no significant increases in mortality corresponding to the thermal gradients on July 28.

Table 3. Daily maximum thermal gradients between the turbine gatewells and the collection channel.

Unit	04-Aug-00	05-Aug-00	06-Aug-00	07-Aug-00	08-Aug-00	09-Aug-00	10-Aug-00
1	3.2	2.0	2.8	2.2	3.3	3.6	2.1
2	-0.6	-0.9	-1.3	-1.2	0.4	-0.1	0.4
3	2.4	1.8	2.5	1.6	2.8	3.1	1.4
4	1.8	2.3	2.7	2.3	2.3	3.3	1.5
5	1.8	2.4	2.5	2.1	1.7		
6	1.6	2.8	2.9	2.4	2.7	1.9	1.7
7	0.8	3.3	2.8	2.1	2.0	1.3	1.4
8	1.0	3.0	1.8	2.4	1.4	1.1	0.8
9	1.1	2.7	1.7	1.4	1.7	0.9	0.9
10	1.3	1.8	1.2	1.5	1.6	1.1	1.4
11	0.8	1.5	1.4	1.1	1.1	0.8	0.8
12	0.4	0.1	0.9	0.9	1.3	0.9	0.6
13	0.6	0.9	1.2	0.6	0.9	2.1	0.3
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Unit 2 is down for maintenance during the month of August.

