

Update for the Green River Basin Advisory Group

October 12, 2004

Green River Basin Advisory Group Meeting in Lyman, Wyoming

by

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An Update on Colorado River Programs and Issues:

- Colorado River Drought and Seven Basin States' Water Management Discussions
- Colorado River Basin Salinity Control Forum
- Flaming Gorge Dam Operations and EIS



Going Into our 6th Year of Drought

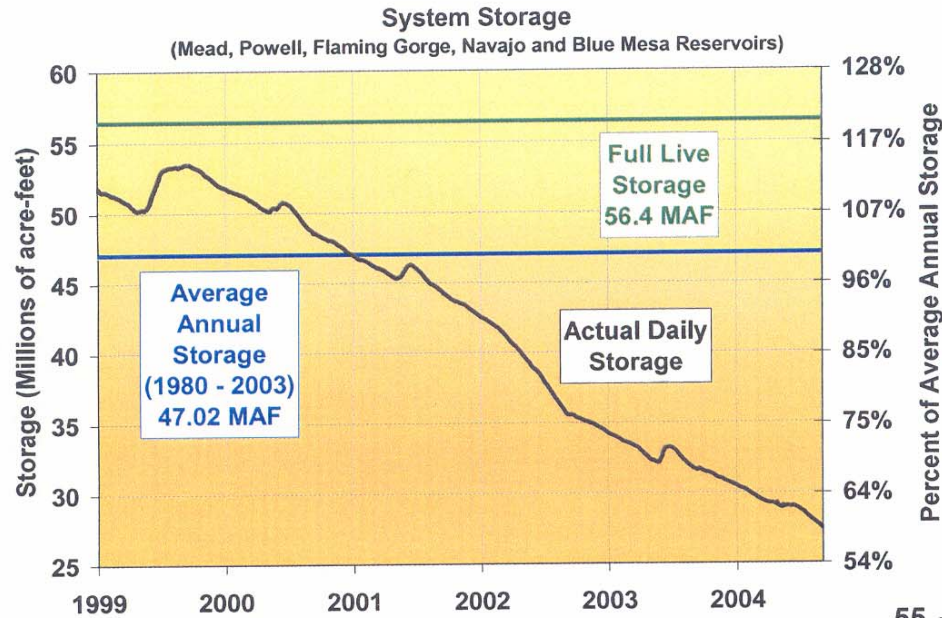
Lake Powell Unregulated Inflow – Water Years 1999 - 2004

Water Year 1999	109% of average
Water Year 2000	(7.1 MAF) 62% of average*
Water Year 2001	(6.8 MAF) 59% of average
Water Year 2002	(3.1 MAF) 25% of average
Water Year 2003	(6.4 MAF) 51% of average
Water Year 2004	(5.8 MAF) 51% of average

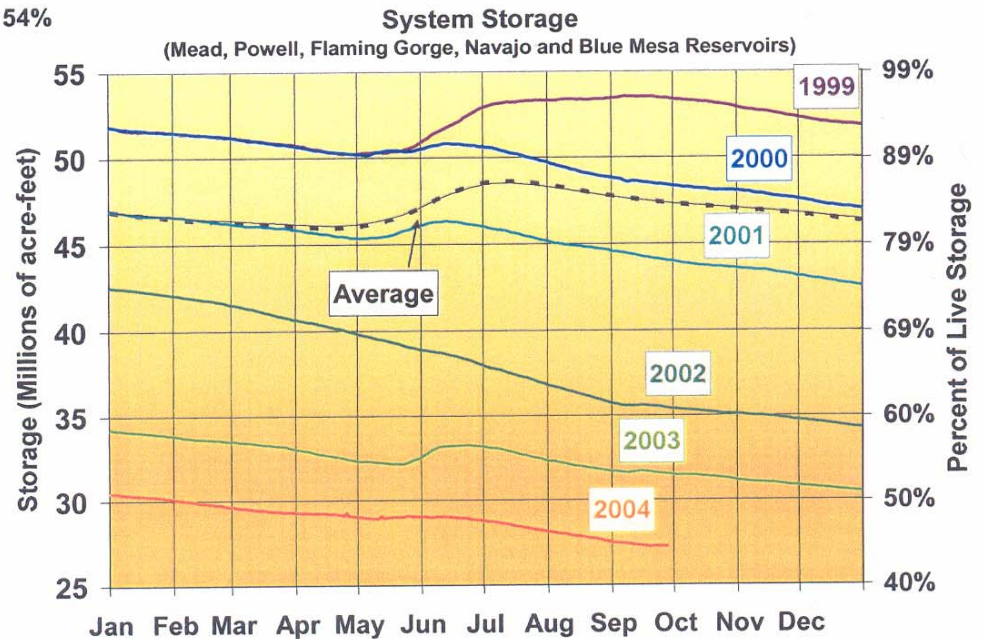
The average of the last five years has been 50 percent of the 30 year average of 11.8 million acre-feet!

* Average computed using the Water Year 1971 through 2000 period.

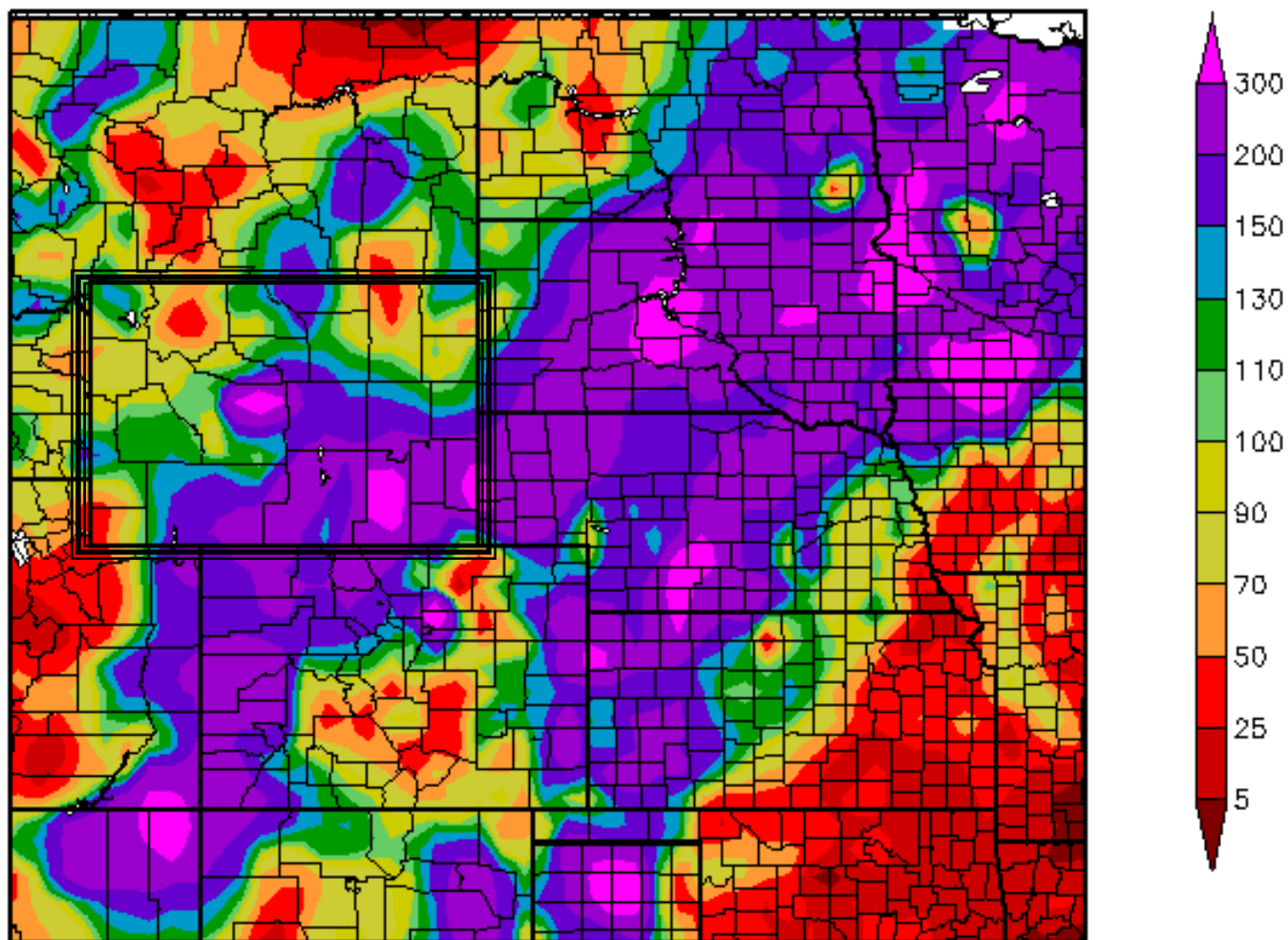
System Storage (Mead, Powell, Flaming Gorge, Navajo and Blue Mesa Reservoirs)



A comparison of system storage during the current drought to the average annual storage level (since Powell first filled in 1980, through the last full year on record 2003).



Percent of Normal Precipitation (%)
9/1/2004 - 9/30/2004



Generated 10/1/2004 at HPRCC using provisional data.

NOAA Regional Climate Centers

2005 Lake Powell Inflow Scenarios (To be included in the 2005 Annual Operating Plan)

Scenario	Water Year 2005 Volume in Million Acre Feet	Historic Volumes (30- year Average)
Minimum Probable (90 % exceedance)	3.75 MAF (31 %)	6.1 MAF (51 %)
Most Probable (50 % exceedance)	9.23 MAF (77 %)	12.1 MAF (100 %)
Maximum Probable (10 % exceedance)	15.27 MAF (127 %)	18.2 MAF (151%)

Lake Powell Storage Schematic

3,700 feet

Full Pool = 24.322 MAF
Live Storage

3,570 feet

Current Live Storage
September 30, 2004
9,169,500 Acre-Feet
38 % of Live Capacity

Active Storage = 5.17 MAF

3,490 feet

Penstocks (3,470 feet)

Minimum Power Pool

Inactive Pool = 4.0 MAF

3,370 feet

River Bypass Tubes

Dead Pool Elevation

Dead Pool = 1.9 MAF



Continuing deliveries of 8.23 million acre-feet per year (MAFY) will result in Lake Mead continuing to drop:

Annual LCRB Water Balance:

- With average side (tributary) inflows and normal deliveries to CA, AZ and NV, Lake Mead storage will continue to decline between 0.75 to 1.0 MAFY.
- Side inflow about balances evaporative losses at Lake Mead on an average annual basis.
- The Lower Basin cannot sustain 7.5 MAFY of use (“normal” deliveries”) if releases from Lake Powell continue to be 8.23 MAFY for a prolonged period.

Inflow: + 8.23 MAF
+ 0.77 MAF

+ **9.00 MAF**

(Powell release + side inflows)

Outflow: - 7.5 MAF
- 1.5 MAF
- 0.3 MAF

- **9.30 MAF**

(LB & Mexico apportionments + downstream regulation, gains and losses)

Evaporation: - **0.70 MAF**
(Lake Mead annual evaporation loss)

Balance: - **1.0 MAFY**

Continuing deliveries of 8.23 million acre-feet per year (MAFY) may result in Lake Powell continuing to drop:

- March 1, 2004 snowpack was at 96% of average.
- March 2004 saw a 32% drop in snowpack.
- Water Year 2002 inflow to Lake Powell was the lowest ever observed since the completion of GCD in 1963.
- Currently only 80 feet above the minimum power pool elevation of 3490 feet.

9/30/2004 Storage:

9.17 MAF

2005 Inflow ???

10% Probability: 3.75 MAF

50% Probability: 9.23 MAF

Ave. last 5 yrs: 5.84 MAF

Evaporation 0.314 MAF

Outflow ???:

8.23 MAF

or 7.48 MAF

Resultant Balance:

If 8.23 MAF release and inflow is less than 8.54 then Lake Powell storage will drop.

Articles III(a), III(b) and III(d) of the Colorado River Compact state:

- (a) There is hereby apportioned from the Colorado River system in perpetuity to the upper basin and to the lower basin, respectively, the exclusive beneficial consumptive use of 7,500,000 acre-feet of water per annum, which shall include all water necessary for the supply of any rights which may now exist.
- (b) In addition to the apportionment in paragraph (a), the lower basin is hereby given the right to increase its beneficial consumptive use of such waters by 1,000,000 acre-feet per annum.
- (d) The States of the upper division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years reckoned in continuing progressive series beginning with the 1st day of October next succeeding the ratification of this compact.

Colorado River Deliberations Overview:

- Many meetings, much discussion and a lot of head scratching since July 20th GRBAG meeting on Colorado River drought-related issues and concerns:
 - Colorado River Management (Annual Operating Plan) Work Group meetings
 - Upper Colorado River Commission meetings
 - Seven Basin States' Technical Group meetings

At the center of the discussions is whether 8.23 million acre-feet (MAF) of water should be released from Lake Powell in 2005:

- 8.23 MAF is stated in the Coordinated Long Range Operating Criteria to be the minimum annual release objective from Lake Powell.
- 8.23 MAF is the sum of 7.5 MAF (as per CRC's Article III(d) requirement that the States of the Upper Division will not cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of 10 consecutive years) plus $\frac{1}{2}$ the Mexican delivery:
 - The flow of the Paria River averages 20,000 acre-feet per year and is included as part of the UB delivery
 - $7,500,000 \text{ AF} + 750,000 \text{ AF} - 20,000 \text{ AF} = 8,230,000 \text{ AF}$

Article III(c) of the Colorado River Compact states:

- If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River system, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the upper basin and the lower basin, and whenever necessary the States of the upper division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

Colorado River Discussions Overview - continued:

- The Upper Colorado River Commission met in Durango, Colorado on October 6th-7th.
 - Meeting facilitated agreement on an Upper Division State (CO, WY, UT & NM) letter to Lower Division States (CA, AZ & NV) letter.
 - Letter invites state-to-state discussions among the Basin States addressing the need to come to agreement on whether a deficiency under Article III(c) of the Colorado River Compact exists, which would trigger an obligation of the Upper Division States to deliver water to help meet the Mexican Water Treaty-required delivery of 1,500,000 acre-feet per year of Colorado River Water to Mexico.
 - 8.23 MAF versus 7.48 MAF



Fontenelle Dam and Reservoir

The 2005 Annual Operating Plan for the Colorado River Reservoir System as recommended to the Secretary of the Interior includes an Upper Basin States-requested mid-year review (in April 2005) of the Annual Operating Plan to determine if a reduction in total release from Lake Powell should occur.

The recommended AOP language reads as follows:
“Due to the severe drought and the reduction in available reservoir storage in the Colorado River Basin, pursuant to Article I(2) of the Operating Criteria, the Secretary will review the 2005 annual release amount from Lake Powell in April 2005 to determine if the runoff forecast warrants an adjustment to the release amount for water year 2005. Any revision to the AOP may occur only through the AOP consultation process as required by applicable federal law.”

Seven Colorado River Basin States' Technical Committee (a.k.a. the Shortage Criteria Technical Group)

- The Committee's charge is to gather data and information that will assist in identifying management actions, programs and activities that may lessen or avoid the impacts associated with low runoff, low reservoir and ongoing drought conditions.
 - To date, have:
 - Run computer hydrologic simulation studies of potential hydrologic sequences and determined probabilities of shortages.
 - Developing agreement on what are the crises event horizons.
 - Identified and studied the results of putting potential programs and management actions in place that could be implemented immediately and in the near term that would reduce the reservoir system drawdowns and hasten the recovery of system reservoir storage.
 - Immediate actions, near-term actions and long-term actions.

Seven Colorado River Basin States' Technical Committee (a.k.a. Shortage Criteria Technical Group)

- Researched the historical understanding of “extraordinary drought” term as used in the Mexican Water Treaty and are developing a modern context definition that could be applied.
 - Seven Basin States’ letter has been sent to the Secretary of the Interior advising of the Basin States’ expectation that should shortages be experienced in the Lower Basin (resulting from a Secretarial determination that a shortage water supply condition exists) that deliveries to the Republic of Mexico would be reduced below the annual volume of 1,500,000 acre-feet in accordance with Article X of the Treaty:
 - “In the event of extraordinary drought or serious accident to the irrigation system in the United States, thereby making it difficult for the United States to deliver the guaranteed quantity of 1,500,000 acre-feet (1,850,234,000 cubic meters) a year, the water allotted to Mexico under subparagraph (a) of this Article will be reduced in the same proportion as consumptive uses in the United States are reduced.”

Colorado River Discussions Overview - continued:

- “Stay tuned.”
- Between now and April 2005, the Basin States need to reach agreement on fundamental issues that have been:
 - known to be upcoming since the 1969 CRBPA and 1970 CLROC
 - unaddressed heretofore due to full reservoir and water supply availability and inability to claim any injury.
- April 2005 will be a decision point unless we have a gangbuster winter snowpack season
- Raised stakes for Upper Division States due to continuing decline of Lake Powell.

Article IV of the Upper Colorado River Basin Compact of 1948:

In the event curtailment of use of water by the States of the Upper Division at any time shall become necessary in order that the flow at Lee Ferry shall not be depleted below that required by Article III of the Colorado River Compact, the extent of curtailment by each State of the consumptive use of water apportioned to it by Article III of this Compact shall be in such quantities and at such times as shall be determined by the Commission upon the application of the following principles:

(a) The extent and times of curtailment shall be such as to assure full compliance with Article III of the Colorado River Compact;

(b) If any State or States of the Upper Division, in the ten years immediately preceding the water year in which curtailment is necessary, shall have consumptively used more water than it was or they were, as the case may be, entitled to use under the apportionment made by Article III of this Compact, such State or States shall be required to supply at Lee Ferry a quantity of water equal to its, or the aggregate of their, overdraft of the proportionate part of such overdraft, as may be necessary to assure compliance with Article III of the Colorado River Compact, before demand is made on any other State of the Upper Division;

(c) Except as provided in subparagraph (b) of this Article, the extent of curtailment by each State of the Upper Division of the consumptive use of water apportioned to it by Article III of this Compact shall be such as to result in the delivery at Lee Ferry of a quantity of water which bears the same relation to the total required curtailment of use by the States of the Upper Division as the consumptive use of Upper Colorado River System water which was made by each such State during the water year immediately preceding the year in which the curtailment becomes necessary bears to the total consumptive use of such water in the States of the Upper Division during the same water year; provided, that in determining such relation the uses of water under rights perfected prior to November 24, 1922, shall be excluded.

Wyoming State Engineer Proposal to Develop Recommendations and Plan to Administer Article IV of the Upper Colorado River Basin Compact – **Should** the Need Arise:

- *Gather affected public input through meetings with public held in Wyoming's portion of the Basin.*
- *Team Approach – Effort spearheaded by Wyoming's Alternate UCRC Commissioners; supported by Division IV Water Superintendent and Interstate Streams Engineer; and guided by a facilitator.*
- *End product: report with recommendations advising State Engineer what he needs to do and how it should be done:*
 - *additional water measurement data needs*
 - *what rules and regulations, if any, should be promulgated by the State Engineer*
 - *Describe options to use Fontenelle Reservoir (or other) storage to lessen impacts*
 - *What protections exist for post-1922 water rights*
 - *General approach to compliance with Article IV*

The reservoir system is functioning exactly as intended:

- Lake Mead storage remains slightly over 50% of capacity (13.9 MAF) while the Lower Basin States are drawing at the “full development” rate of 7.5 MAFY.
- Lake Powell (with 38% of live storage capacity remaining) has been able to make the requisite deliveries to the Lower Basin during the past five years of record-setting, worse than previously experienced drought.

Colorado River Basin Salinity Control Program

- The Forum will hold its 71st Meeting in Yuma, Arizona on October 21st.
 - Meeting will be preceded by a tour of the Yuma Desalting Plant and other Title I facilities in area
 - Major upcoming Forum project: Preparation of the 2005 Review of Water Quality Standards in the Colorado River Basin (Triennial Review).
 - This review and the resulting triennial review report is likely to be different than prior ones.
 - Computer modeling is indicating that with the salinity controls now in place, there is only a 3% chance that the numeric criteria of 723 mg/l at Hoover Dam will be exceeded. At the end of the 2005 Review period, 2008, without any new salinity control measures implemented, there is a 12% chance of the numeric criteria being exceeded.
 - the numeric criteria and that standard which the Forum has elected not to change since its adoption in the mid-1970's calls for a program that would basically prevent the numeric criteria exceedance 50% of the time.

Upper Colorado River Endangered Fish Recovery Program:

- **Reported at the last GRBAG meeting that on June 17th, the House of Representatives passed H.R. 4568, the Interior and Related Agencies Appropriations Act for Fiscal Year 2005.**
 - The bill includes \$700,000 in the Fish and Wildlife Service's budget in Recovery Funds for the Upper Colorado River Endangered Fish Recovery Program.
 - USFWS funding for Upper Colorado River Program was “zeroed out” in the President's FY 2005 Budget released in February 2004.
 - Funding restored by House Interior Appropriations Subcommittee and included in the Full Committee's mark and the bill as enacted by the House
 - Strong Congressional delegation support – as evidenced in the annual joint delegation funding support letters – and letters from the participating States' Governors – were quite helpful.
- On September 14, 2004, the Senate Interior Appropriations Subcommittee marked the Interior and Related Agencies Appropriations Act for Fiscal Year 2005.
 - Senate bill includes \$691,000 in the Fish and Wildlife Service's budget in Recovery Funds for the Upper Colorado River Endangered Fish Recovery Program.
 - This is a restoration of the amount that was zeroed out in the President's budget.

Upper Colorado River Endangered Fish Recovery Program - continued

- Department of the Interior responded to the joint delegation letters sent to Interior Secretary Norton in late June and early July by the House and Senate delegations of States participating in Upper Colorado River and the San Juan River Recovery Programs requesting full program funding in Fiscal Year 2006 and future years.
 - September, 2004 response letters from the Assistant Secretary of the Interior for Fish, Wildlife and Parks stated that the Department of the Interior supports the Recovery Programs and will continue to provide funding to the extent possible.
- We anticipate the President's Fiscal Year 2006 budget, when released in February 2005, will include Upper Colorado River and Platte River Recovery Program funding.

Public Meetings on the Flaming Gorge Draft Environmental Impact Statement

- The draft EIS is available on Reclamation's web site at www.usbr.gov/uc/ (click on Environmental Programs and then click on the Flaming Gorge Dam Environmental Impact Statement).
- Written comments on the draft EIS are due by **November 15, 2004.**
- The public hearings' schedule on the draft EIS includes a public meeting in Rock Springs:
 - Tuesday, October 19, 2004, 6 p.m.--Holiday Inn, 1675 Sunset Drive, Rock Springs, Wyoming.

Thanks for your interest and
attention;

Questions?



Tree at Dead Horse Point, near Moab, Utah;
2000 feet above the Colorado River