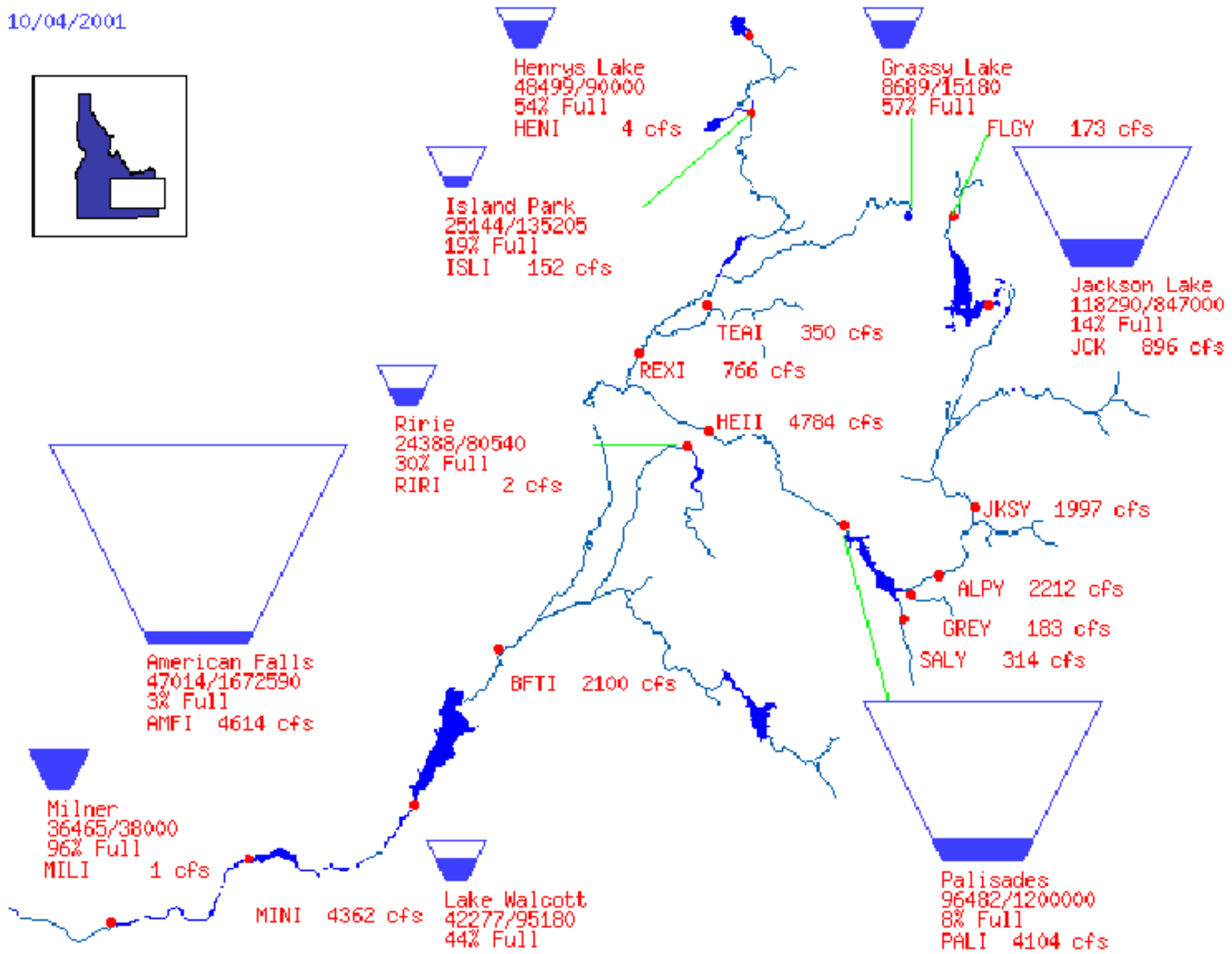


Integrated Operation of Snake River Reservoirs

Mike Beus and Mark Croghan
Snake River Area Office
Bureau of Reclamation

History of Snake River Development

- Relative Priorities
- Among Natural Flow and Storage
 - Storage is Natural Flow
 - Storage Generally Junior
 - Limited Direct Demand in Winter
 - Snowmelt Exceeds Demands
- Among Reservoirs



Stored Water Right Priorities

- Jackson Lake - August 23, 1906
- Lake Walcott - December 14, 1909
- Jackson Lake - August 18, 1910 and May 24, 1913
- Henrys Lake - May 15, 1917
- American Falls - March 29-30-31, 1921
- Palisades - March 29, 1921
- Island Park - March 29, 1921 and March 14, 1935
- Grassy Lake - February 13, 1936
- Palisades - July 28, 1939
- Ririe - June 16, 1969

Palisades Project Features

- Multiple Use
 - Flood Control
 - Irrigation Storage
 - Fish and Wildlife
 - Recreation

Maintaining a Balance

- Within Fish and Wildlife Resources
 - Flow Now or Flow Later?
 - River Flow or Reservoir Storage?
 - Head of Reach or Tail of Reach?
 - Local T&E Species or Regional T&E Species?

Maintaining a Balance

- Within Power Resources
 - Power Now or Power Later?
 - Turbine Flow or Reservoir Head?
 - Head for Which Plant?

Maintaining a Balance

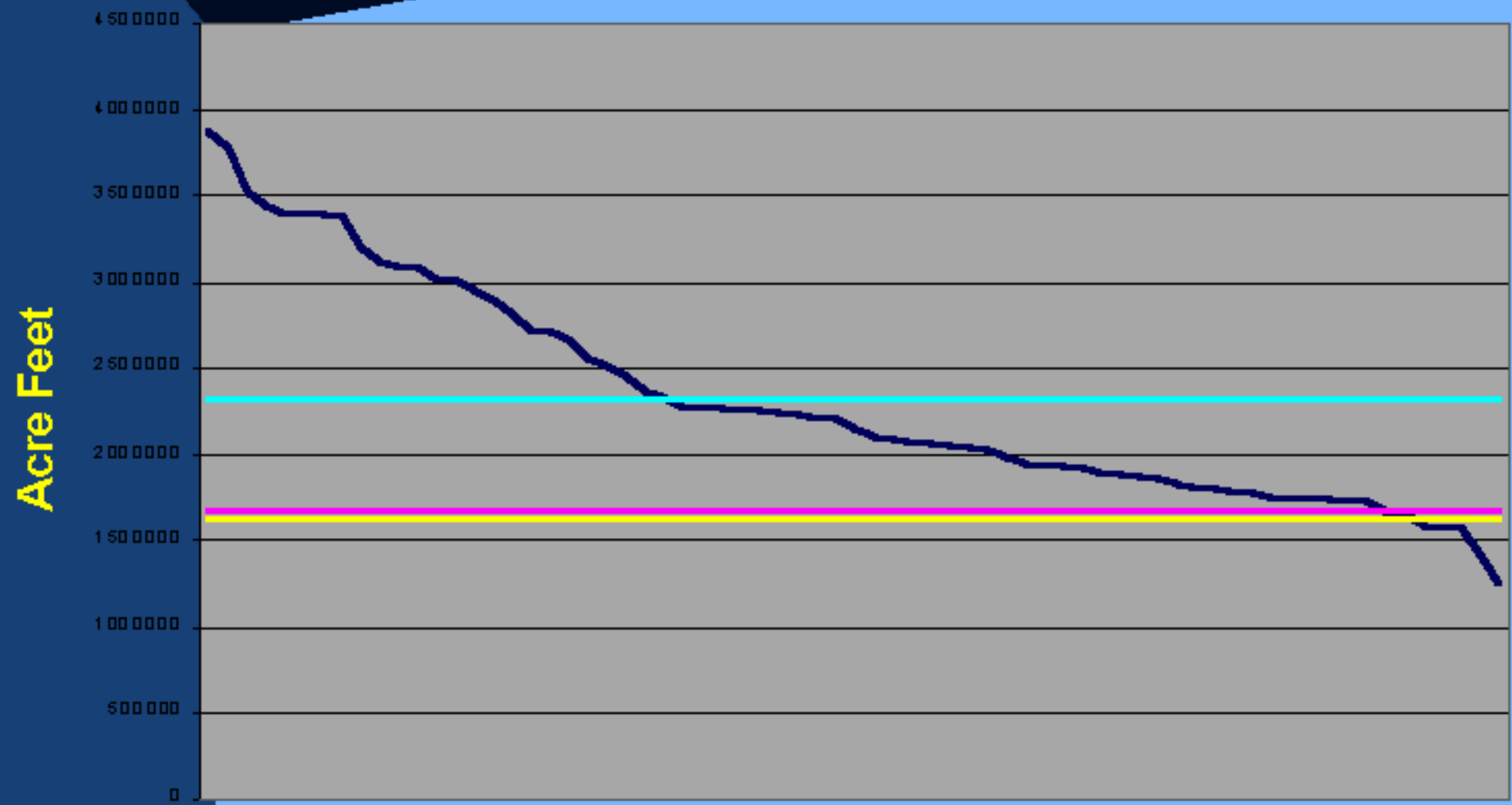
- Within Irrigation Interests
 - This Year or Next Year?
 - Water or Dollars?
 - Big Dollars for High Risk
 - Small Dollars for Low Risk?
 - Distribution Within Season?
 - Distribution Within Area?

Palisades Development

- Coincides With Snake River Compact
 - At Least in Time
 - 33 KAF Reserved

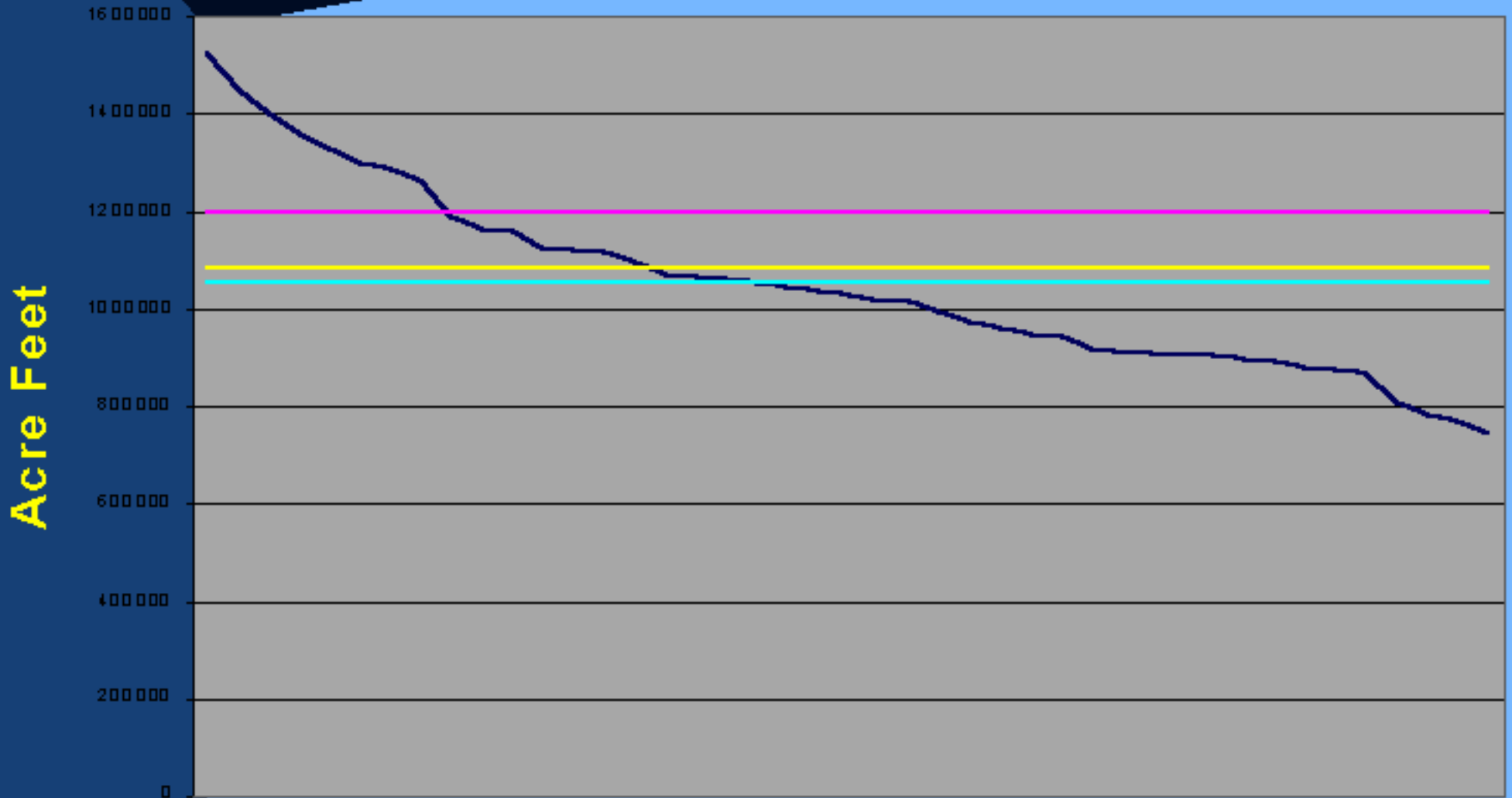
Amercian Falls Reservoir

Ranked Inflow Capacity Empty Space Average



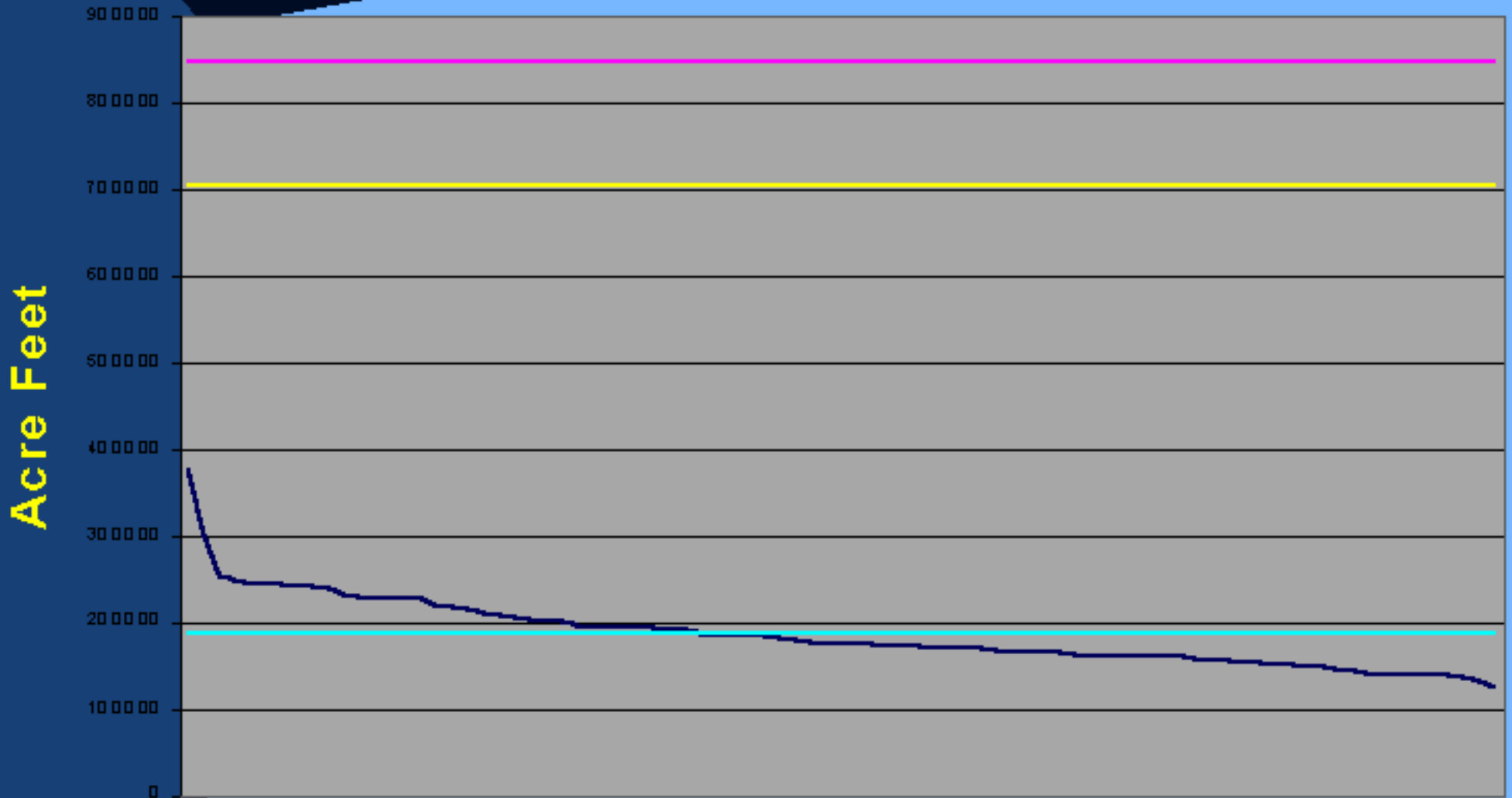
Palisades Reservoir

Ranked Inflow Capacity Empty Space Average



Jackson Lake Reservoir

Ranked Inflow Capacity Empty Space Average



Temporary Storage and Exchange of Water; Release of Jackson Lake and Palisades Water for Power Production

25. (a) It is the purpose of the United States and the water users having storage rights in the reservoir system (including the _____) to have the reservoir system so operated as to effect the greatest practicable conservation of water. In keeping with this purpose, the endeavor will be to hold stored water in reservoir system space that is farthest upstream. Water in storage in any of the reservoirs of the system may, however, when the watermaster and the Advisory Committee determine this to be in the interest of water conservation, be held temporarily in unoccupied space in any other reservoir of the system. And the _____ hereby consents to the making, with the approval of the watermaster, of annual exchanges of stored water among the the various reservoirs of the system. No such temporary holding of water or such annual exchanges shall, however, deprive any entity of water accruing to space held for its benefit.

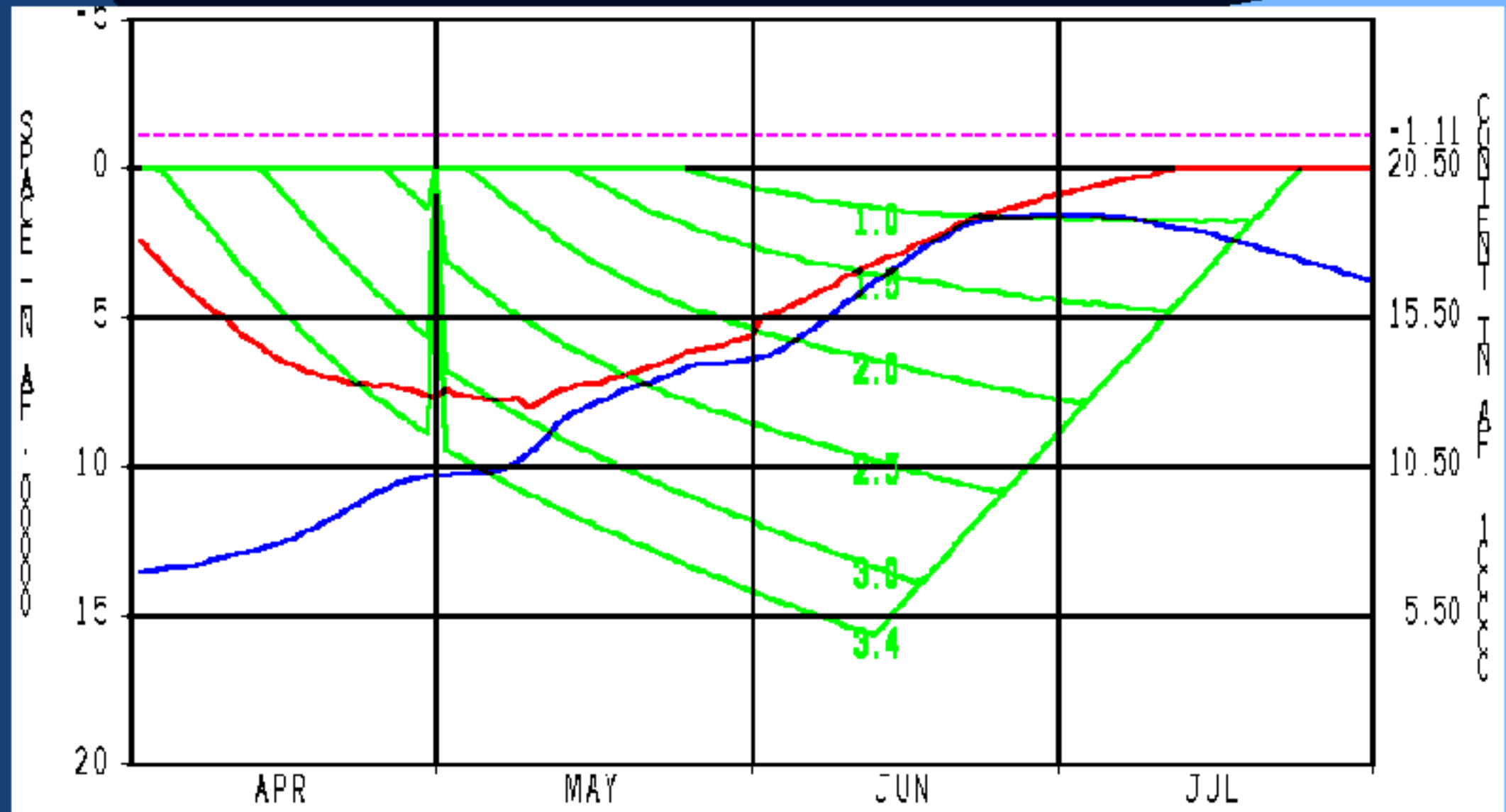
Temporary Storage and Exchange of Water; Release of Jackson Lake and Palisades Water for Power Production

25. (a) It is the purpose of the United States and the water users having storage rights in the reservoir system (including the _____) to have the reservoir system so operated as to effect the greatest practicable conservation of water. In keeping with this purpose, _____ in reservoir system space in any of the reservoirs of the watermaster and the A _____ in the interest of water conservation and the _____ space in any other reservoir. _____ hereby consents to the making, with the approval of the watermaster, of annual exchanges of stored water among the the various reservoirs of the system. No such temporary holding of water or such annual exchanges shall, however, deprive any entity of water accruing to space held for its benefit.

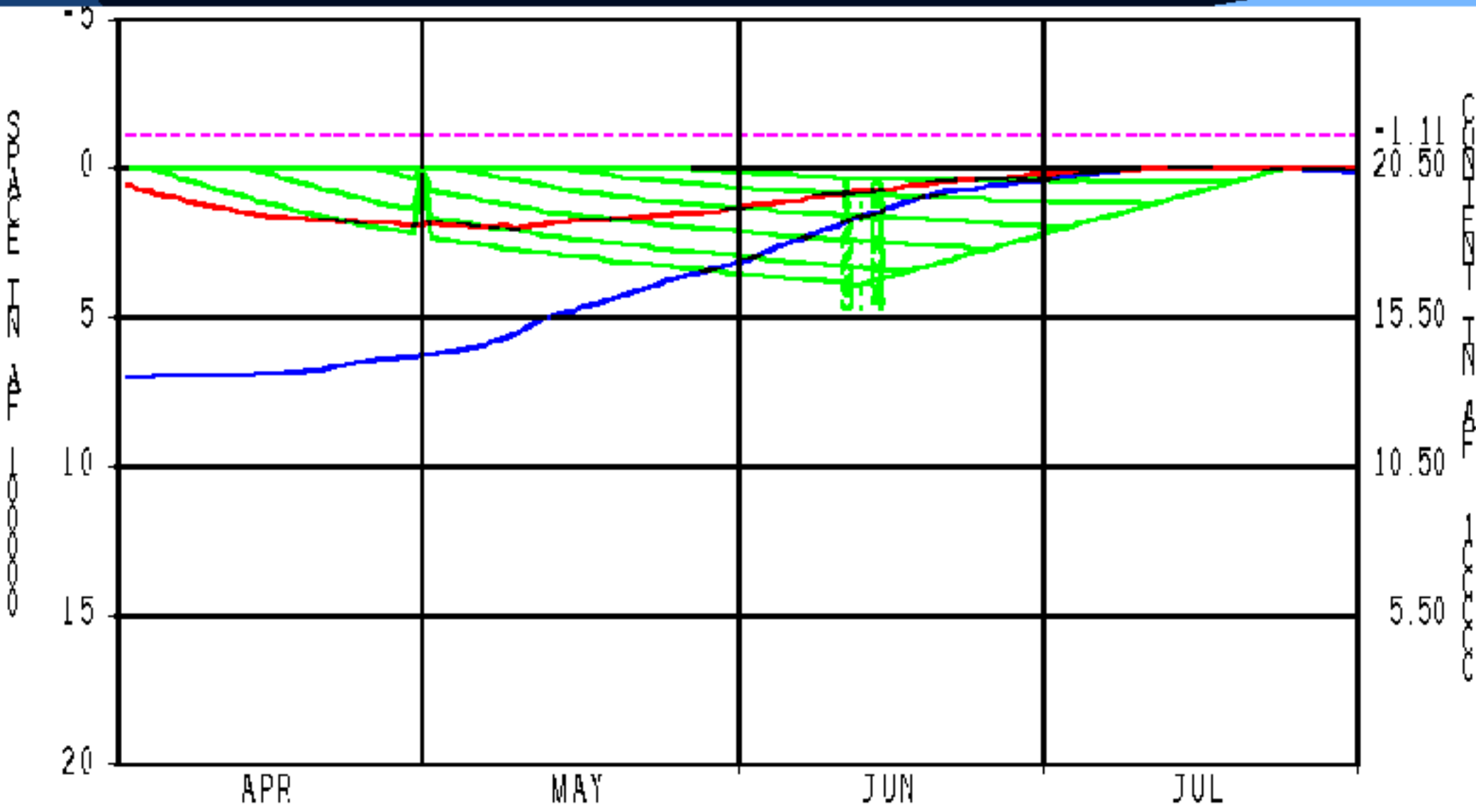
the endeavor will be to
hold stored water in
reservoir system space
that is farthest upstream

Flood Control

- Forecast Parameters
 - Antecedent Runoff
 - Fall-Winter Precipitation
 - Snow Accumulation
 - Spring Precipitation

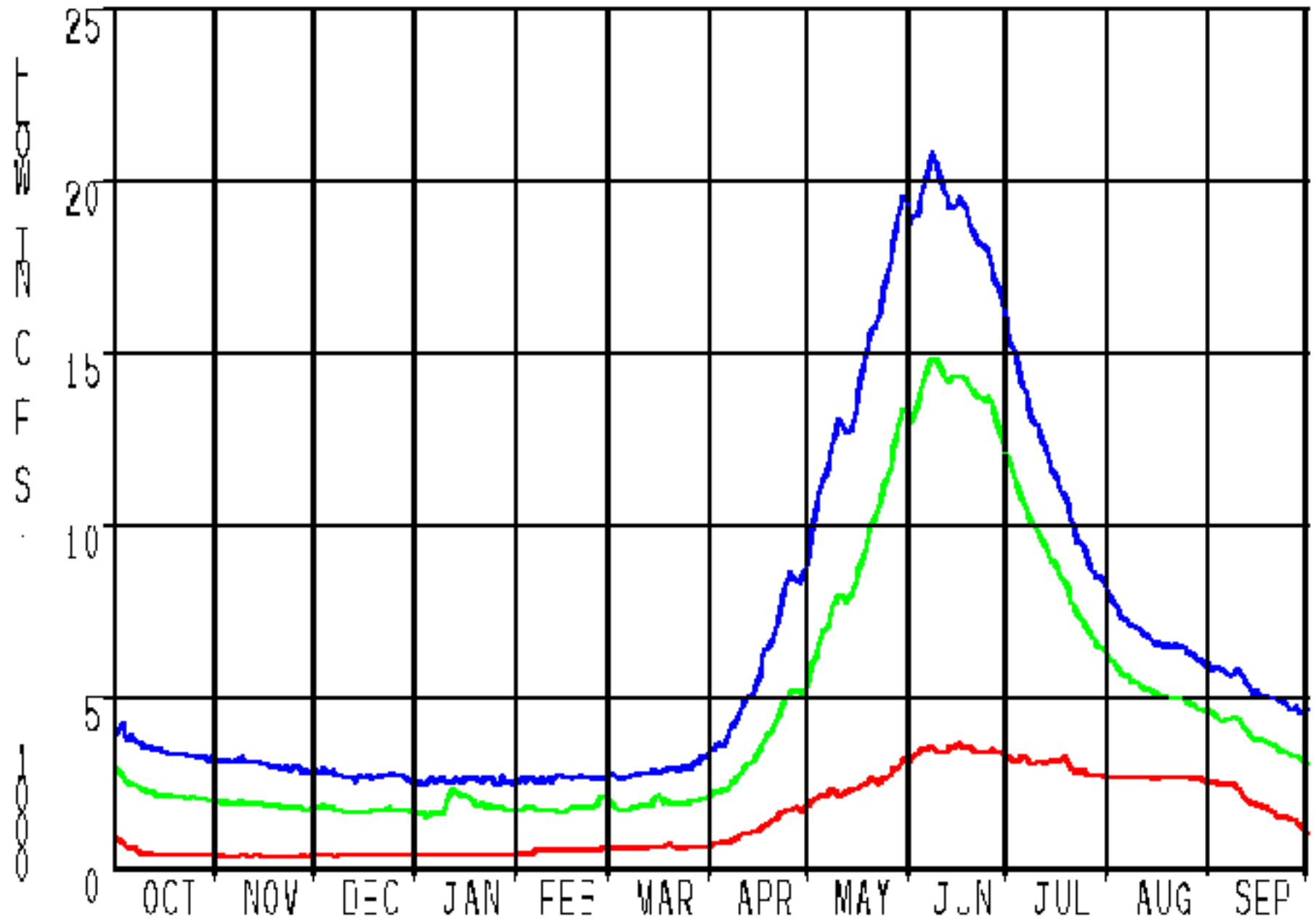


FEII FLOOD CONTROL RULE CURVE-1989 ACTUAL 381434 REQUIRED 0 TARGET



JCK FLOOD CONTROL RULE CURVE-1989 ACTUAL 1530' REQUIRED 0 TARGET

JACKSON LAKE RELEASES Compared to Downstream Flows



JACK QD 6'90

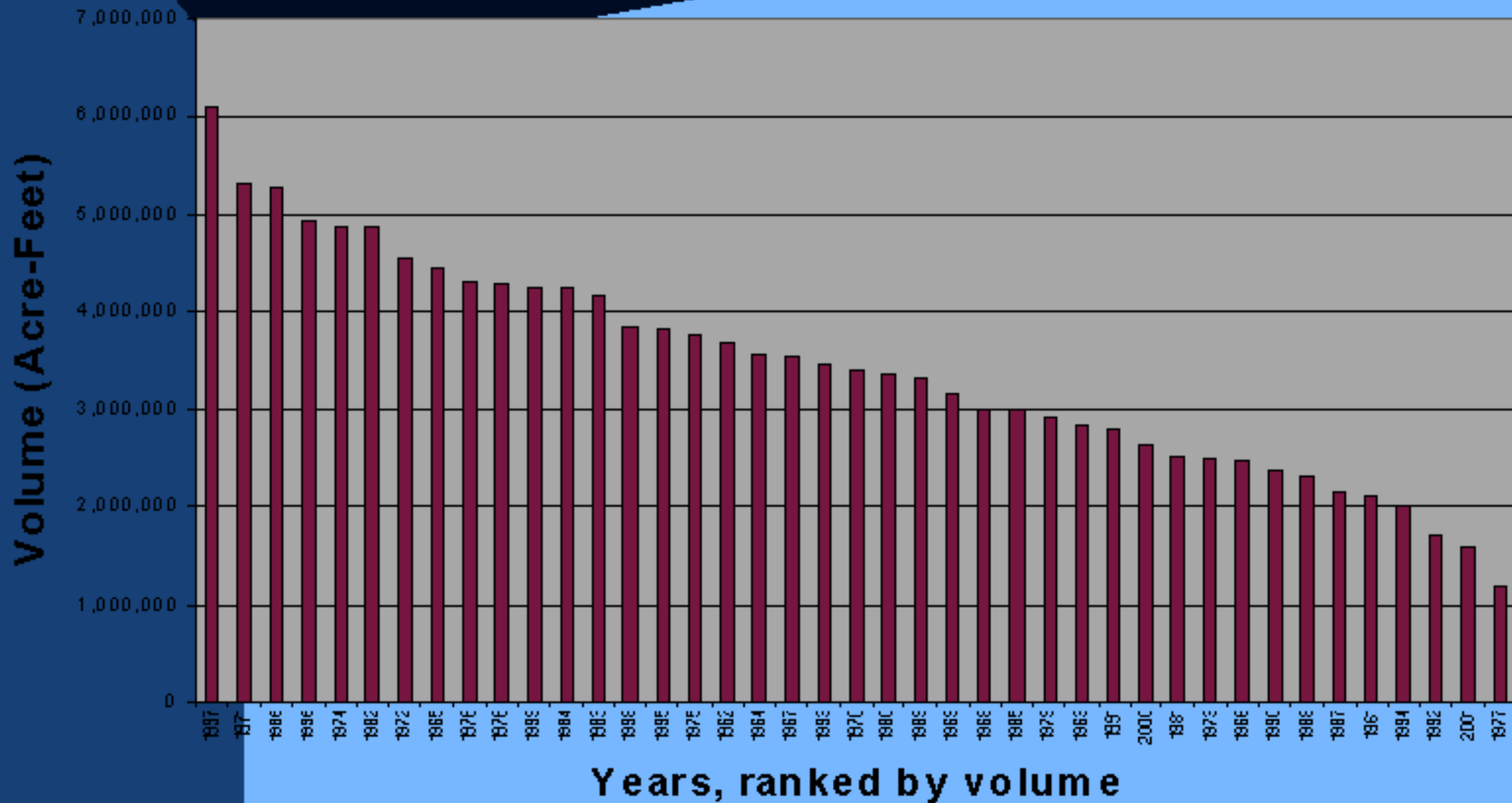
ALPY QD 6'90

PA_ID 6'90

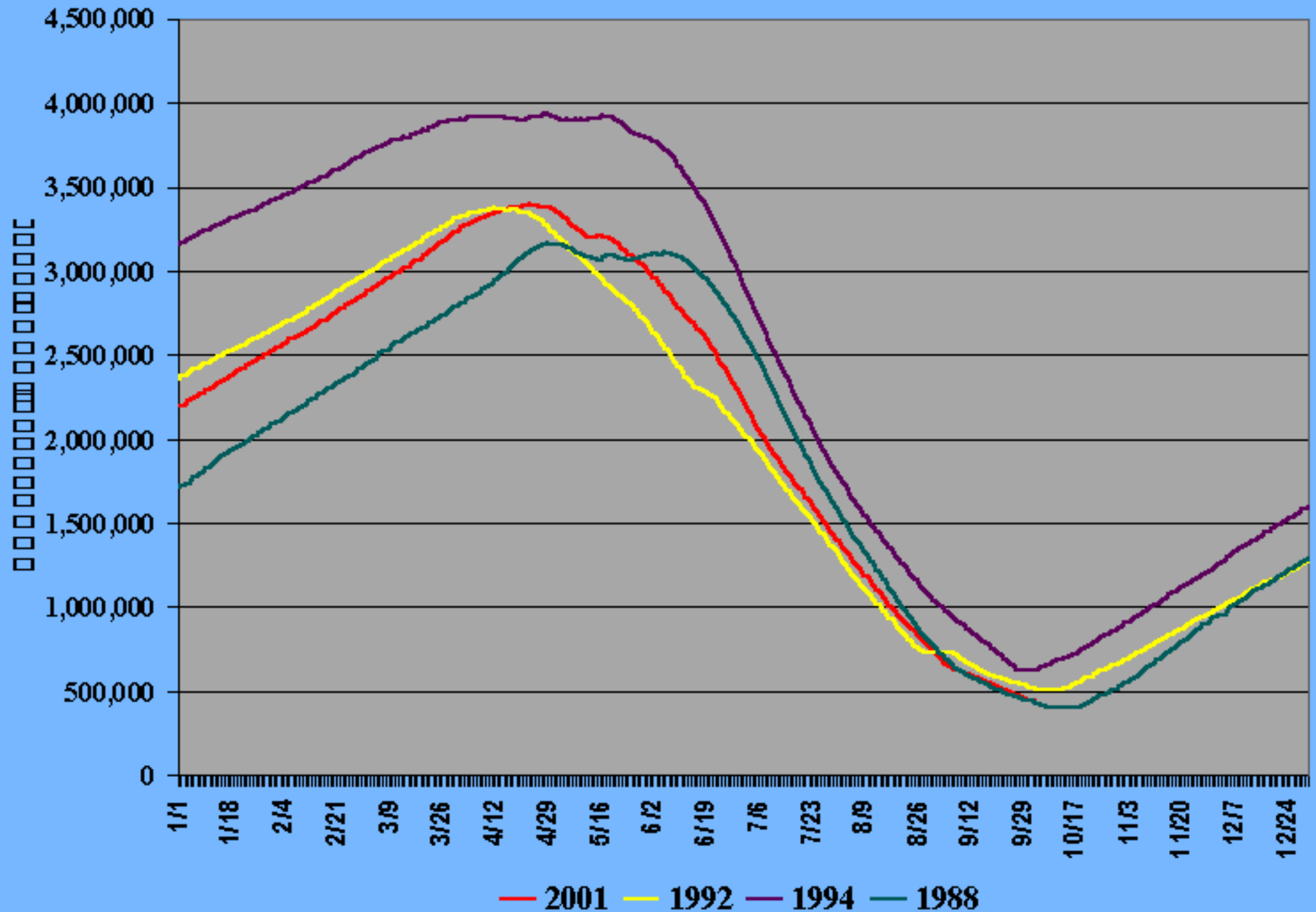
Mid-Winter Flood Control

- 200,000 AF Space in Jackson Lake
 - A Component of Section 7 Regulations
 - Consistent With Structural Constraints
 - Consistent With Average Forecast
 - Released Through Summer Even When Not Needed by Reservoir Spaceholders
 - Completed by October 1 for Lake Fishery
 - Flexibility in Delivery Schedule in Average to Wet Years (May Meeting)

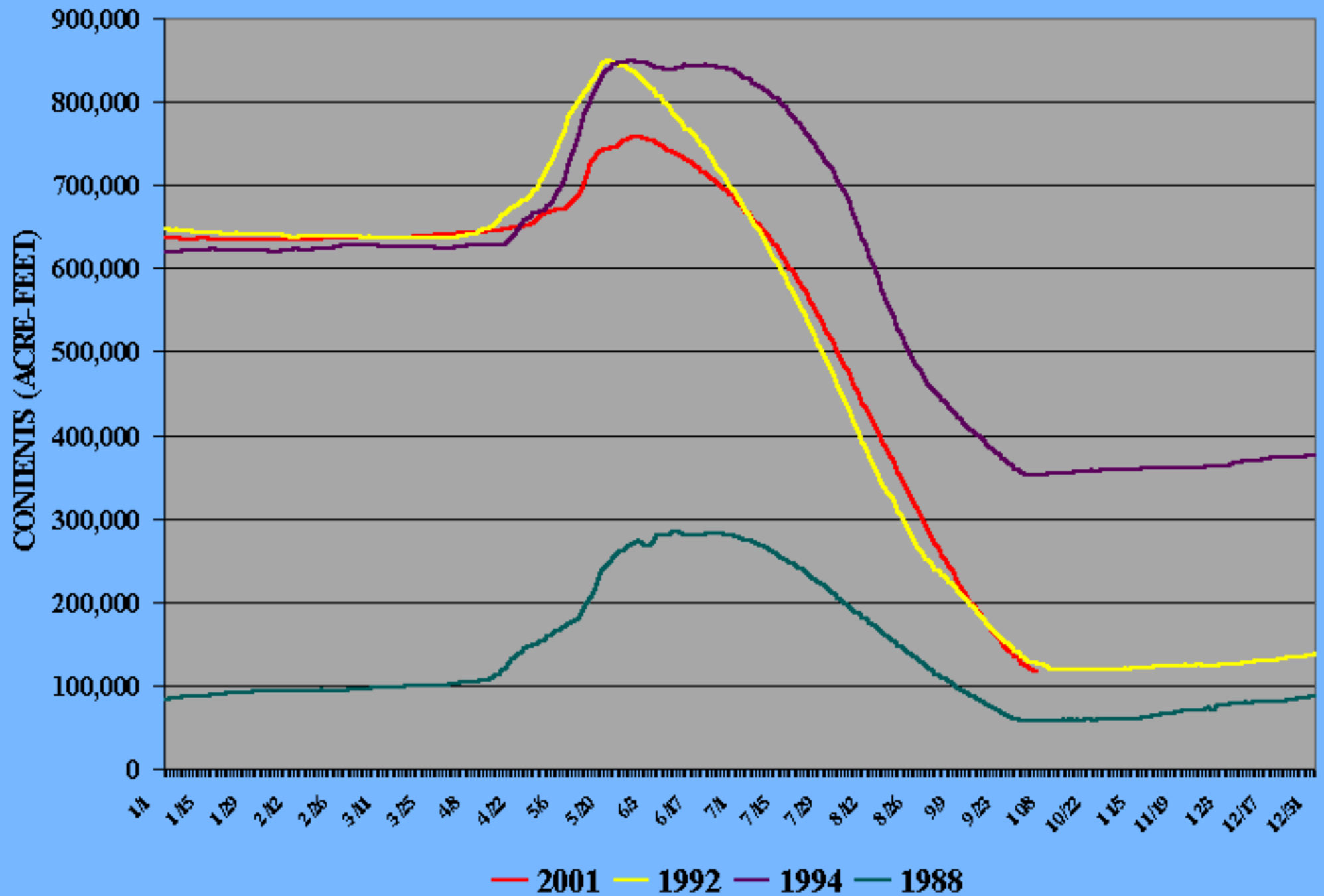
Snake River nr Heise April-July Runoff



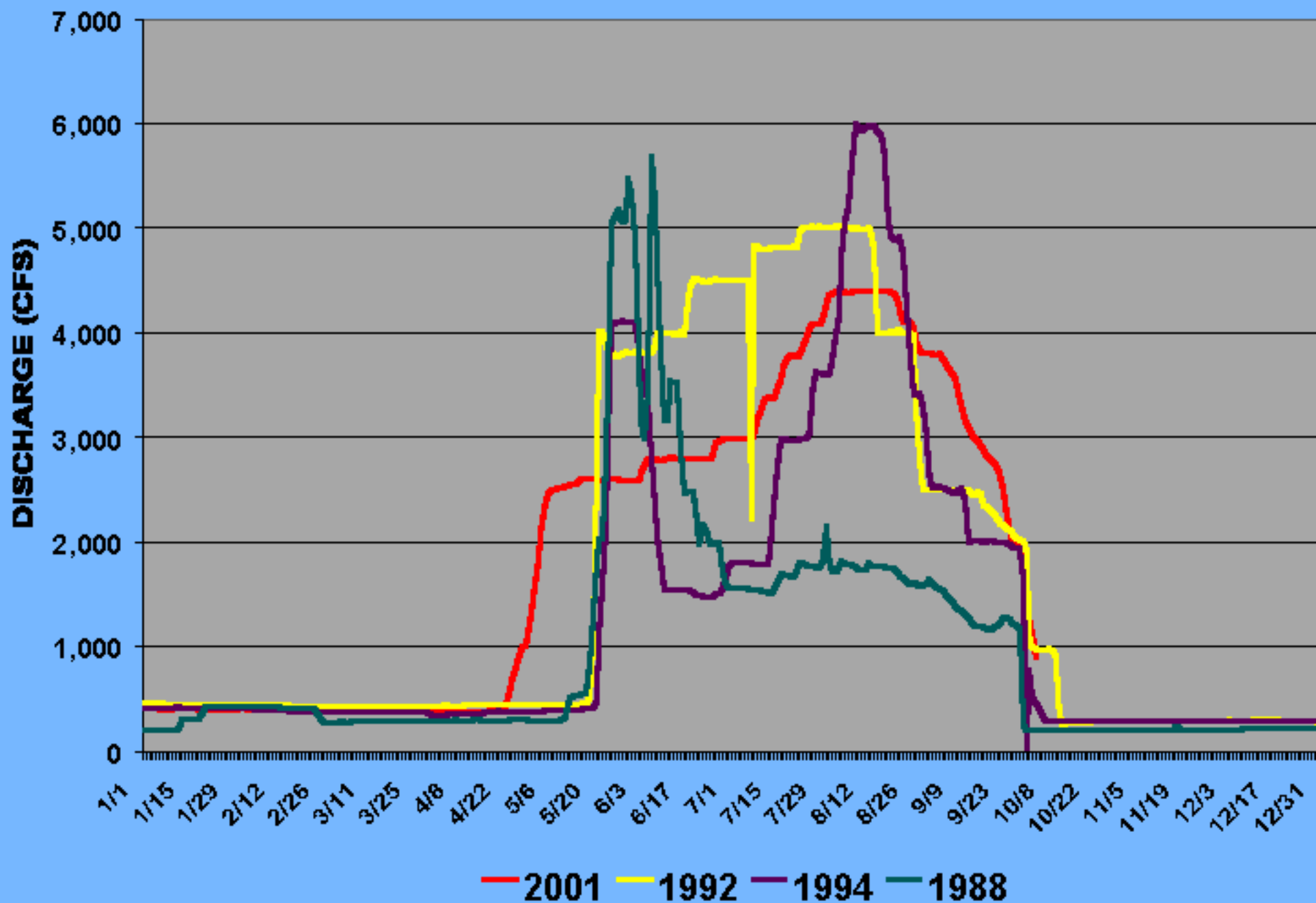
SYSTEM STORAGE ABOVE MILNER



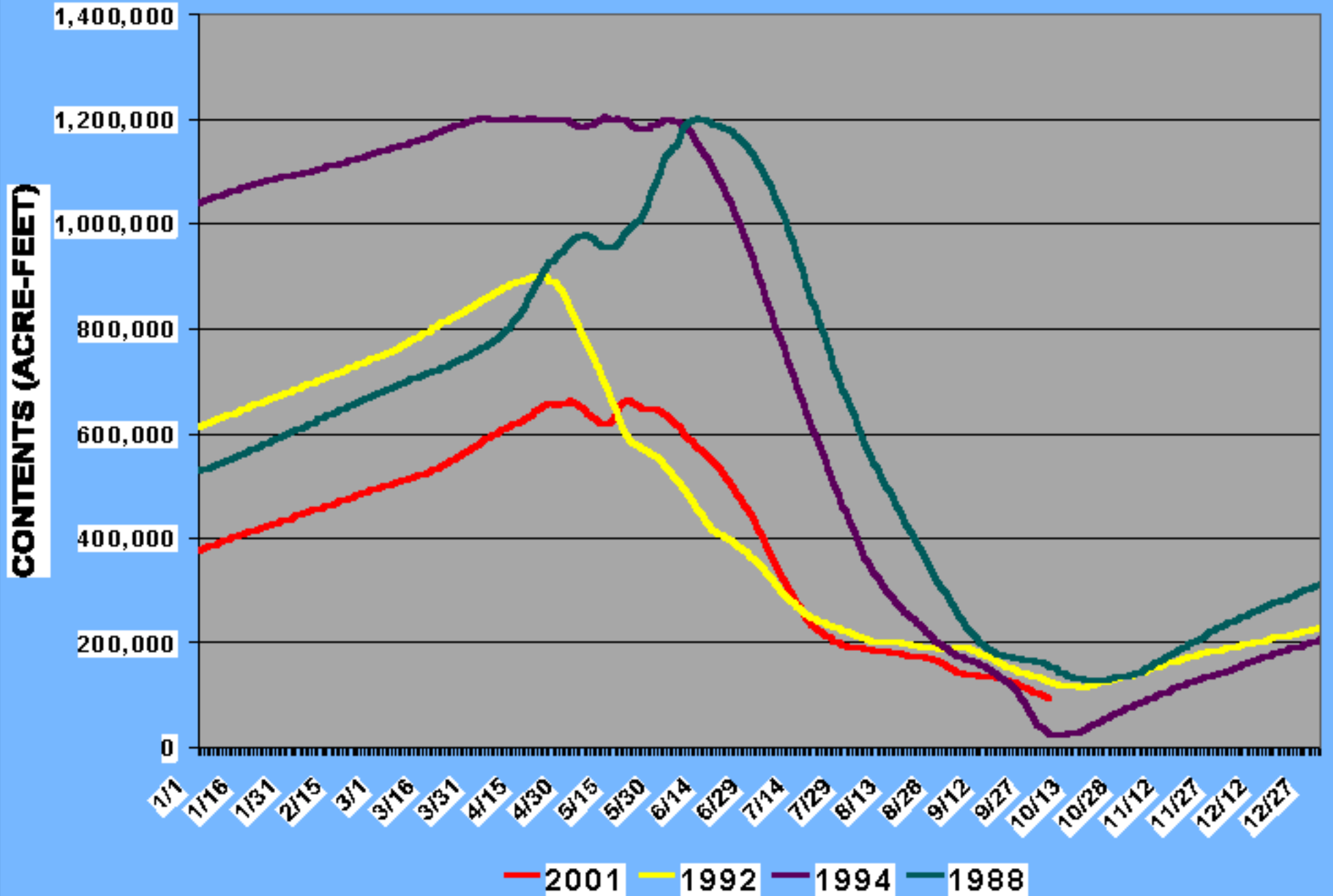
JACKSON LAKE RESERVOIR



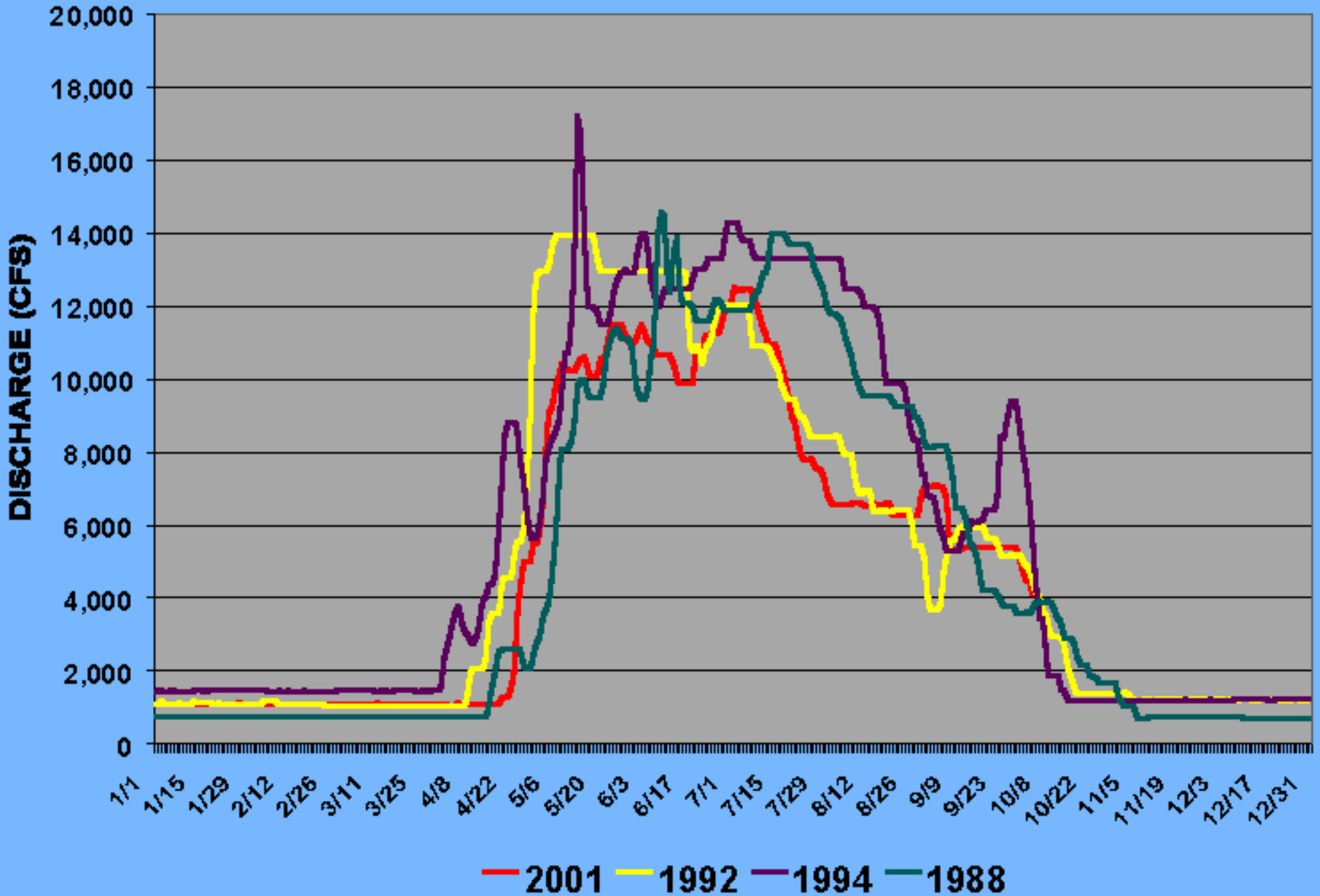
JACKSON LAKE DAM



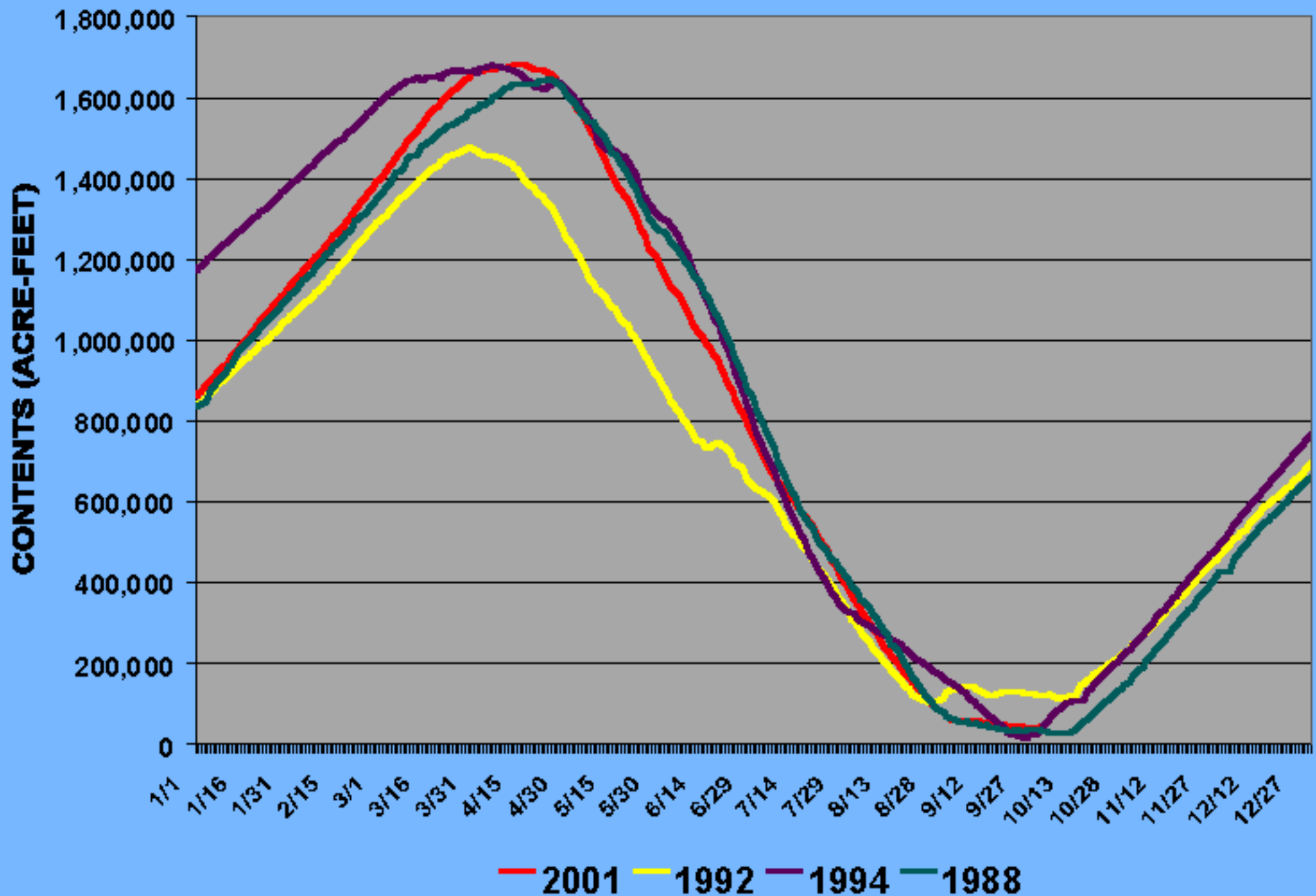
PALISADES RESERVOIR



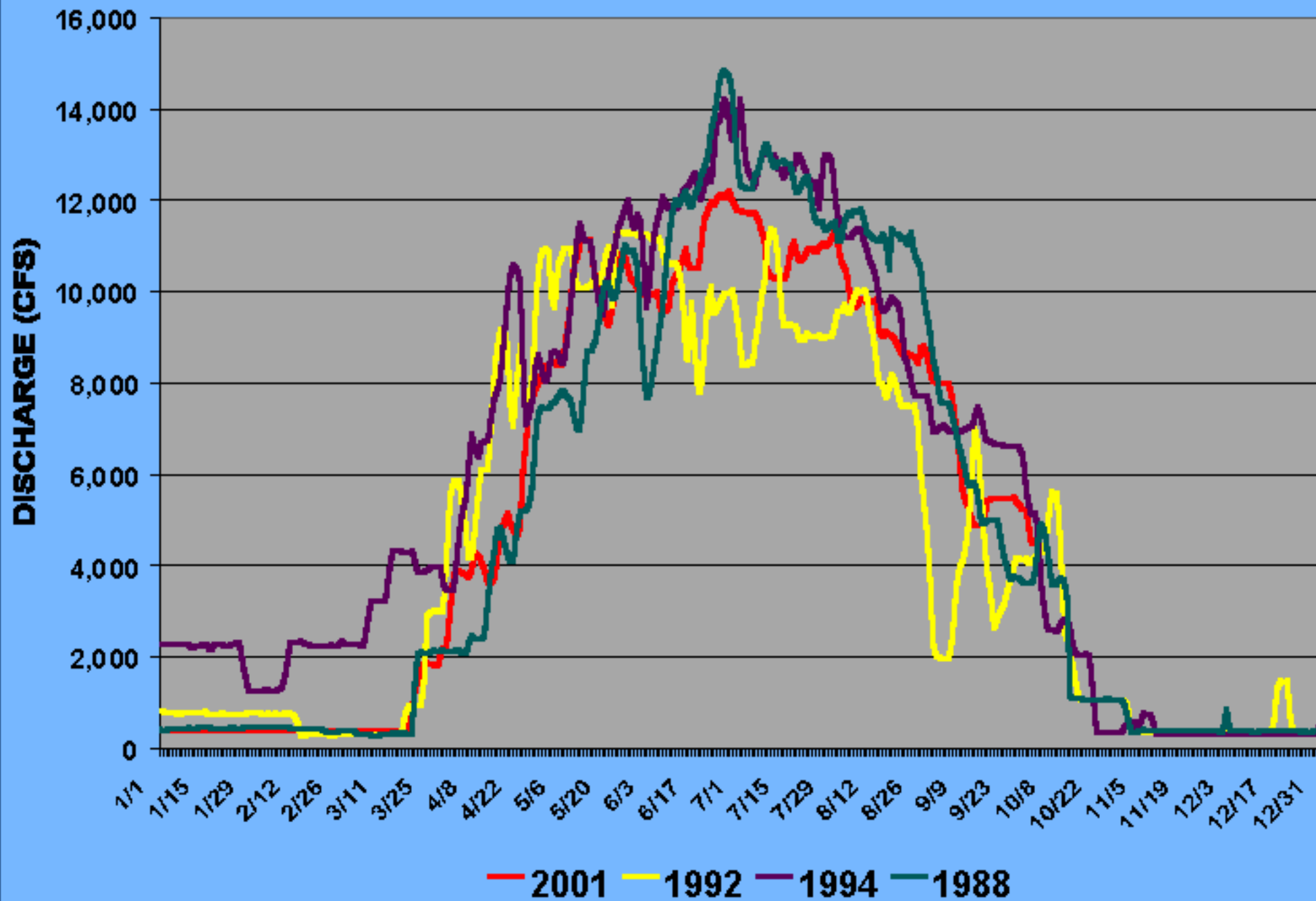
PALISADES DAM

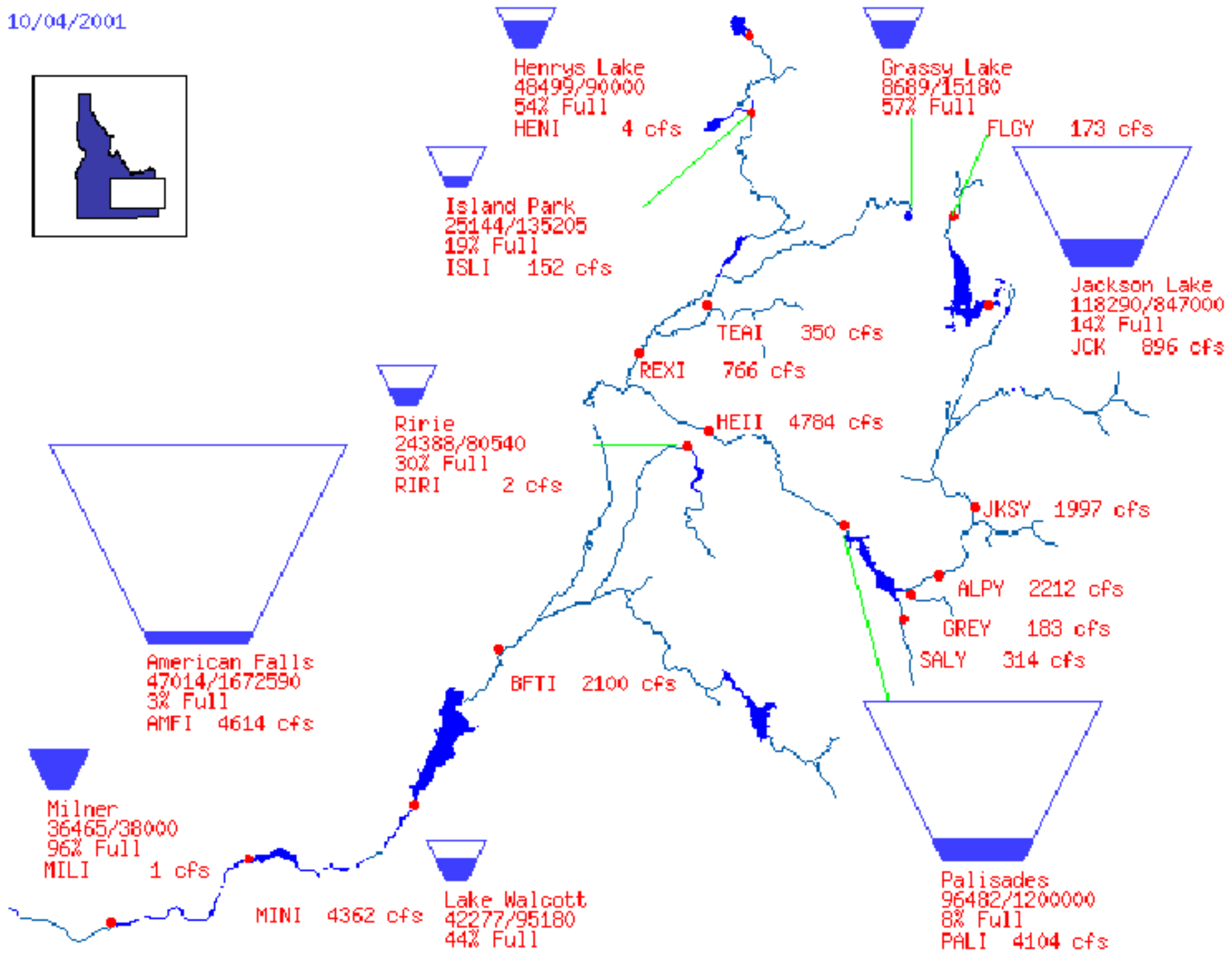


AMERICAN FALLS RESERVOIR



AMERICAN FALLS DAM





Increasing Demands

- ESA Listings
 - Salmon and Steelhead
 - Snails
 - Ute ladies'-tresses
- SRBA
 - Nez Perce
 - Deer Flat
 - Conjunctive Management and Recharge

Augmentation Flows

- 427 KAF Commitment
 - 200+ KAF at Milner
 - 42 KAF in 2001
- Snails
 - Minimum Pools?
 - Ramping Rates?
- Ute ladies'-tresses