IOP Concept 5 Forecast
03 Apr 2007 to 31 Dec 2008

COE HEC-5 Simulation of IOP using hydrologic conditions of 2000 and 2001

HEC-5 Model Settings
IOP Concept 5

- Demands
  - Hydropower
    - Schedule based most recent operation
  - Water Supply
    - 2000 actual net for Chattahoochee and Flint Basins
    - 1993 actual net for Apalachicola River
  - Agricultural
    - Flint River provided by FWS STELLA modeling
    - Chattahoochee and Apalachicola 2000 projected
  - Required Flow
    - Atlanta
    - Columbus
    - Jim Woodruff Outflow; spawn and non-spawning season
- Operation
  - Balanced 4 federal reservoirs
  - Based on Comp Study Black & White model (Water Control Plan)
  - Down ramping rate restriction set by IOP Concept 5
  - IOP flow requirements as described in IOP Concept 5
  - Initial conditions set as reservoir elevations on 03 Arp 2007
    - BUFORD=1068.45, WP=631.36, WFG=188.55, JW=76.95
  - Year 2000 and 2001 hydrologic conditions set for rest of 2007 and 2008

Hydropower Demand

- Hydropower demand is a function of available storage. As the storage diminishes the demand reduces. Storage Zones described in the ACF Water Control manual dated 1989 used as the bases to assign the hydropower demand. Values developed from examining hydropower generation over the last few years.

IOP Model	Buford	West Point	WF George
Zone	(hours use)	(hours use)	(hours use)
1	3	4	4
2	2	2	2
3	2	2	2
4	0	0	0

Water Supply

- The actual 2000 net water use provided by the states Georgia and Alabama used as the municipal and industrial demand for the Chattahoochee and Flint basin. The actual 1993 net water used for the Apalachicola River.

Agricultural Demand

- Flint River Ag demands provided by the FWS STELLA model. Acreages equal to 621,000 and dry year multiplier of 1.4.
- Rest of basin based on NRCS year 2000 projected use. Data developed during the ACT/ACF Comprehensive Study.

Required Flow

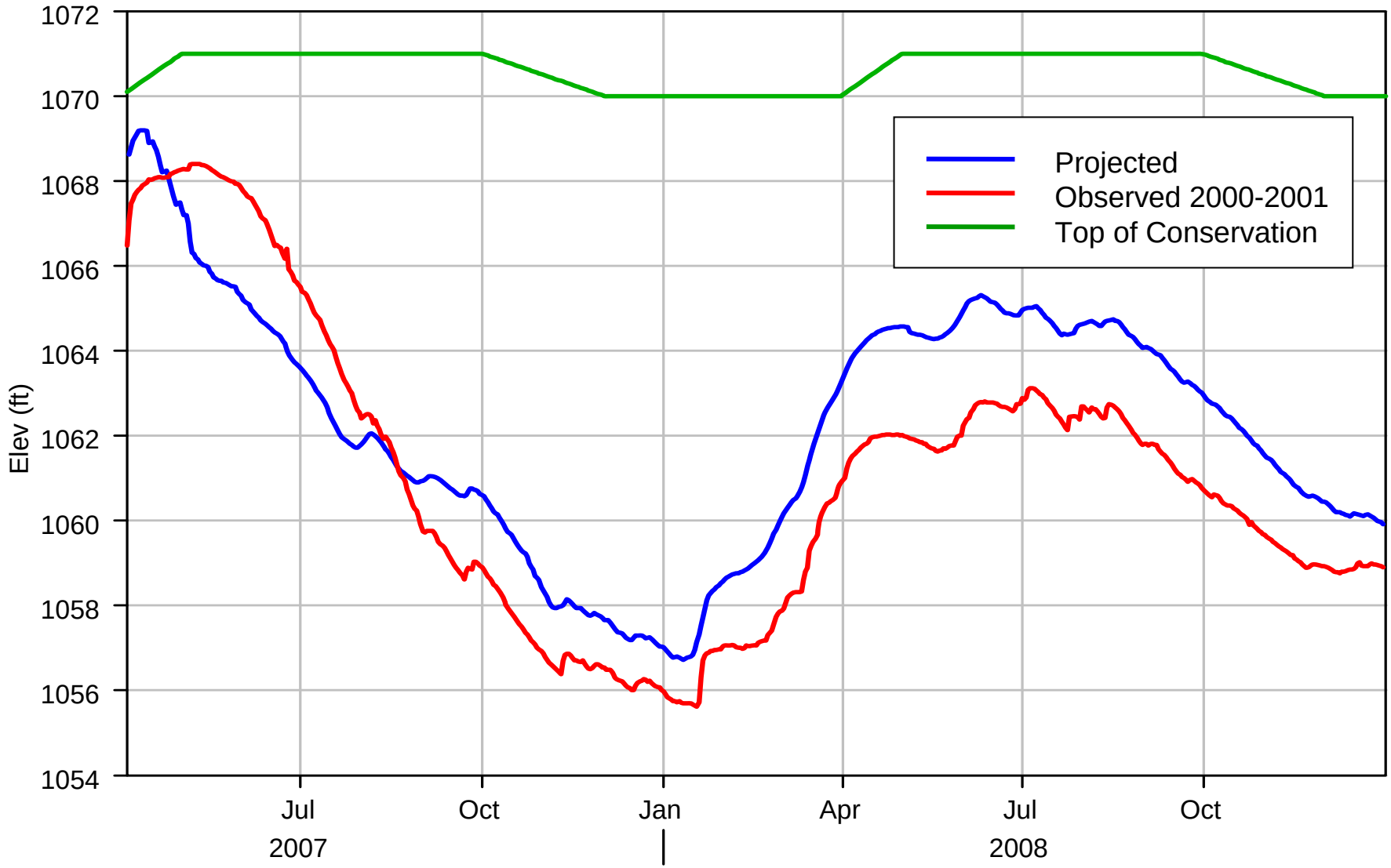
- Minimum flow requirement
  - Atlanta 750 cfs
  - Columbus
    - 1,850 cfs if West Point > 621.6
    - 1,200 cfs if West Point < 621.6
- Continuous Release
  - Buford 450 cfs (small unit)
  - West Point 675 cfs (small unit)
  - Jim Woodruff 100 cfs (lockages/leakages)

Concept 5 Minimum Flow Table

Months	Basin Inflow (BI) (cfs)	Releases from JWLD (cfs)
March - May (Spawning Period)	>= 35,800	not less than 25,000
	>= 18,000 and < 35,800	>= 70% BI; not less than 18,000
	< 18,000	>= BI; not less than 6,500(Desired Flow)* >= BI; not less than 5,000 (Required Flow)
June - February (Non-Spawning Period)	>= 23,000	not less than 16,000
	>=10,000 and < 23,000	>= 70% BI; not less than 10,000
	< 10,000	>= BI; not less than 6,500(Desired Flow)* >= BI; not less than 5,000 (Required Flow)

* Drought Provisions: When Composite storage is within Zones 1 and 2 then the higher minimum release of 6,500 cfs would be maintained, When composite Storage falls below the top of Zone 3, then Release will be reduced to the 5,000 cfs minimum; when Composite Storage is restored to above the top of Zone 2 (i.e. within Zone 1), then higher Release of at least 6,500 would again be maintained. Composite Storage is the combined storage of Lake Sidney Lanier, West Point and Walter F. George.

Projected Lanier Elevation Assuming Year 2000 Hydrology for the Rest of 2007 Operation under IOP Concept 5 (COE HEC-5 Model, 2000-2001 Observed)



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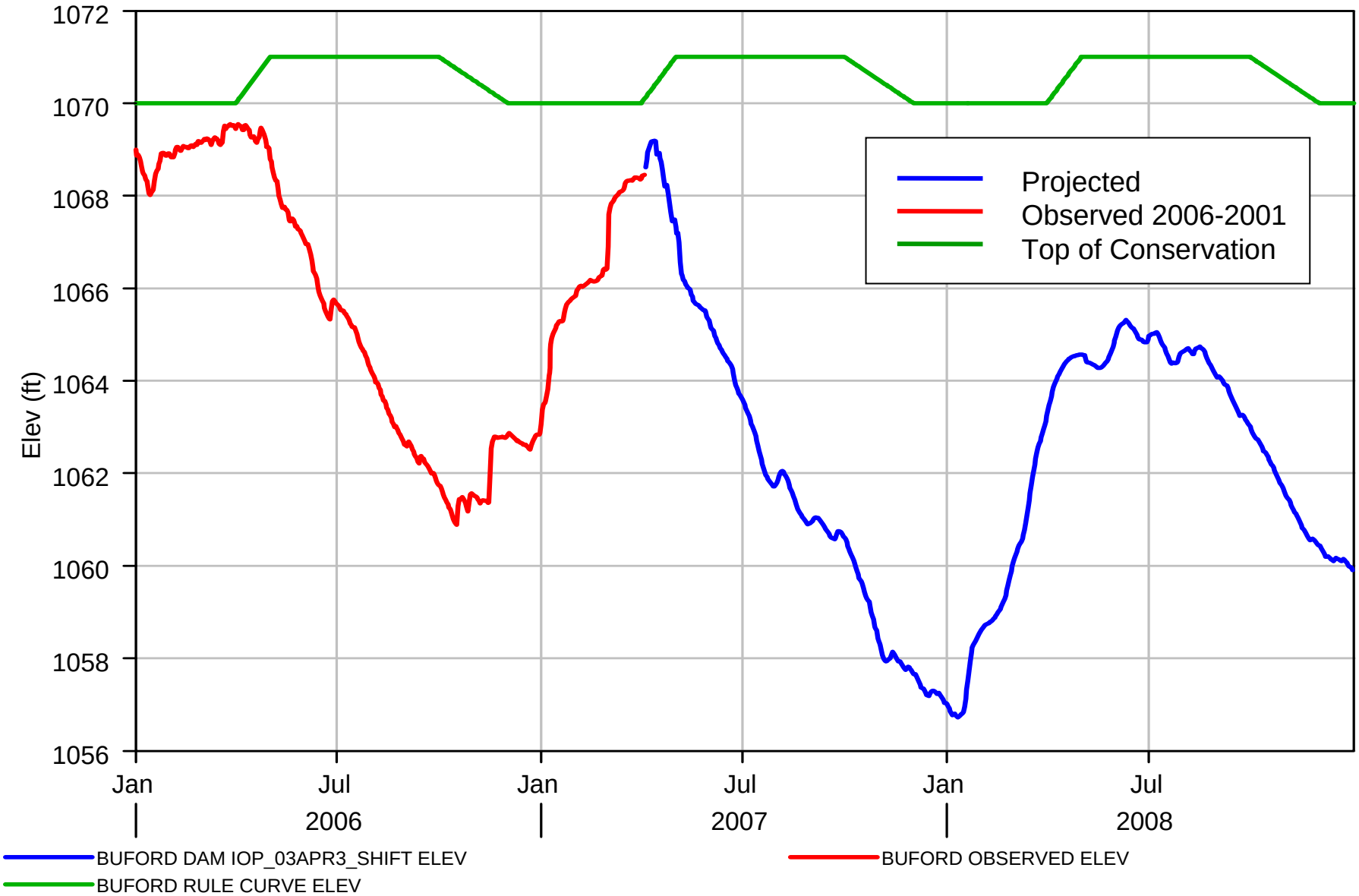

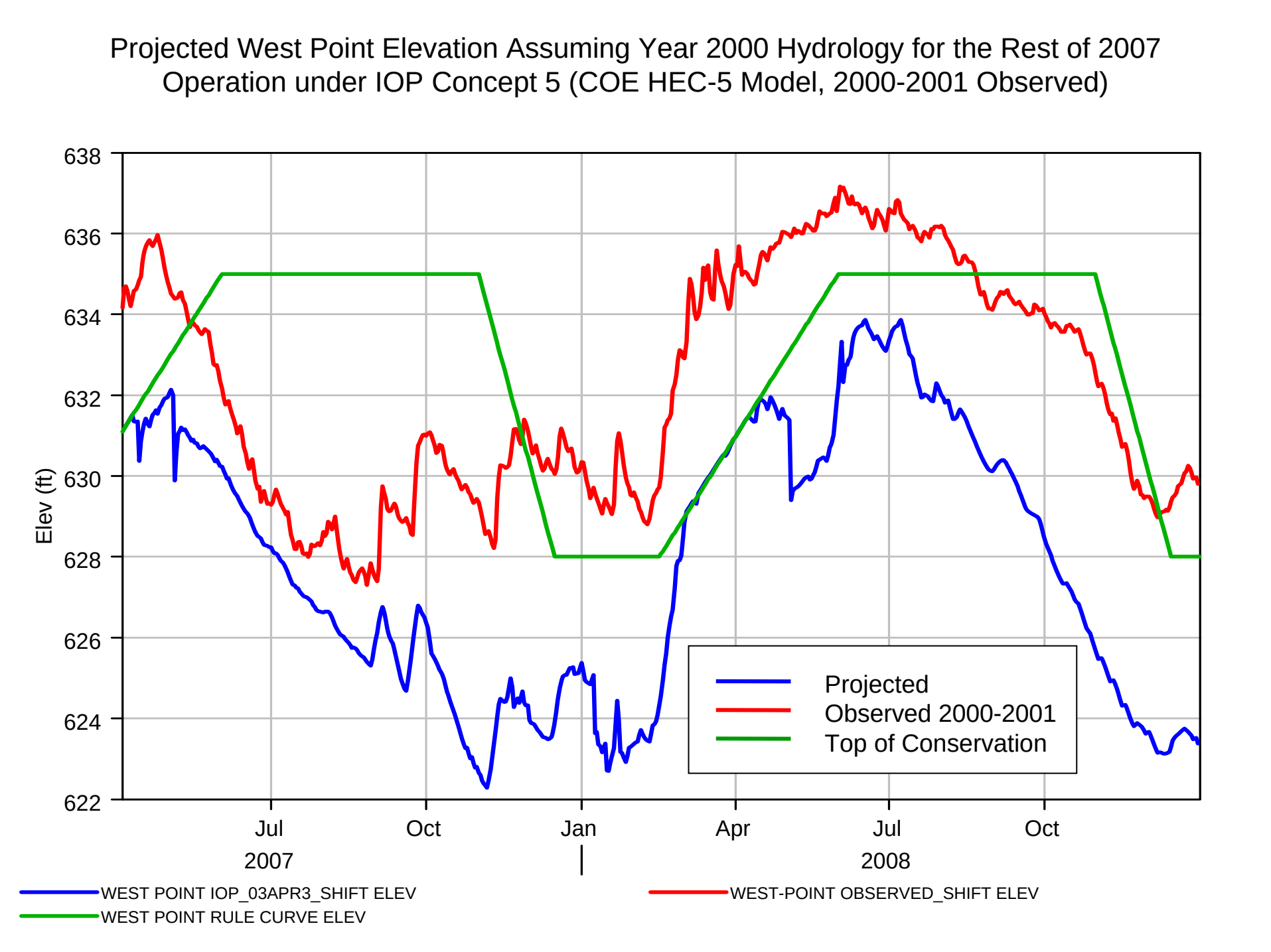
Projected West Point Elevation Assuming Year 2000 Hydrology for the Rest of 2007
Operation under IOP Concept 5 (COE HEC-5 Model, 2000-2001 Observed)
638
636
634
632
630
628
626
624
622
Elev (ft)
Jul
2007
Oct
Jan
Apr
Jul
2008
Oct
Projected
Observed 2000-2001
Top of Conservation
WEST POINT IOP_03APR3_SHIFT ELEV
WEST-POINT OBSERVED_SHIFT ELEV
WEST POINT RULE CURVE ELEV

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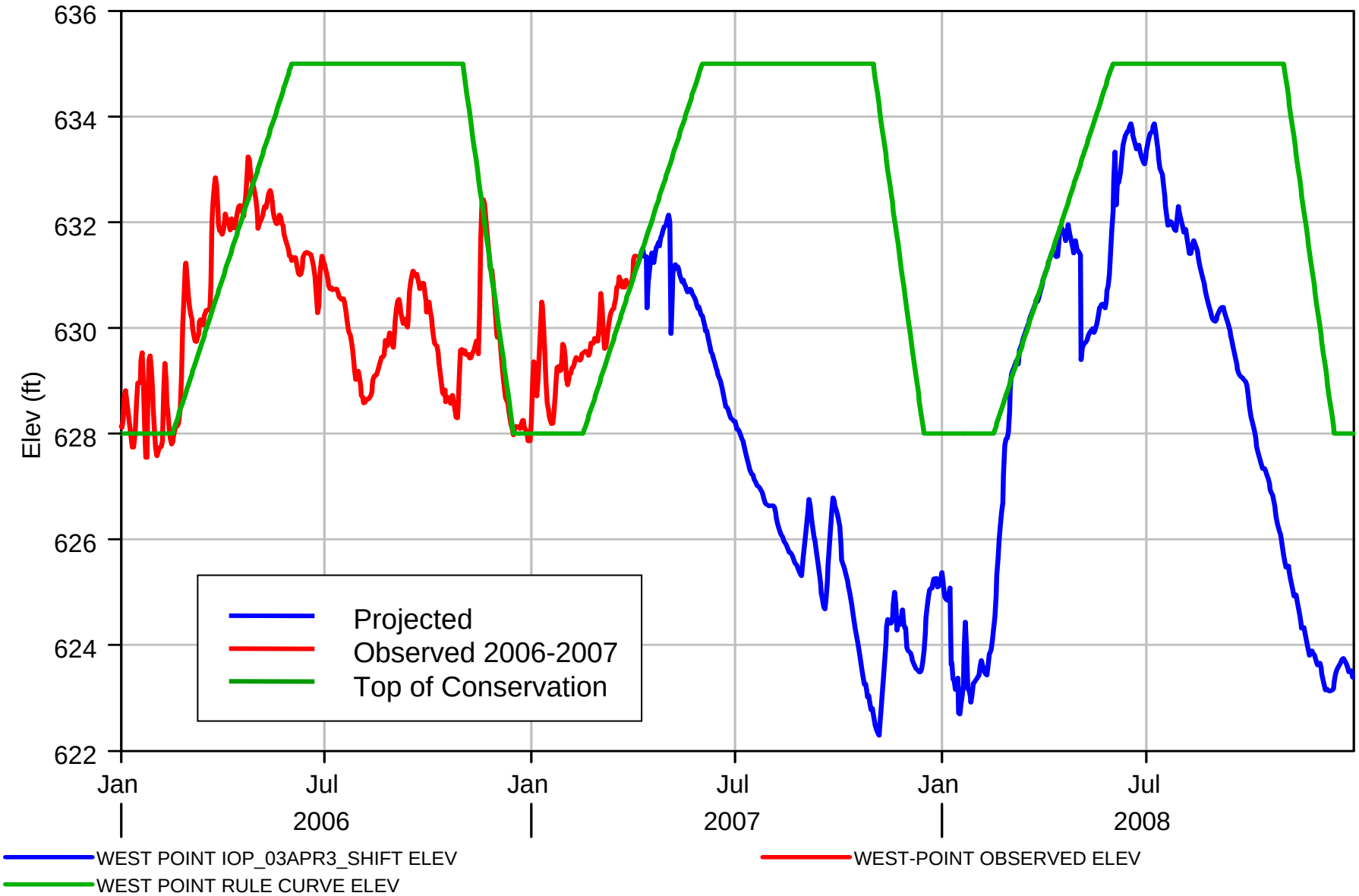
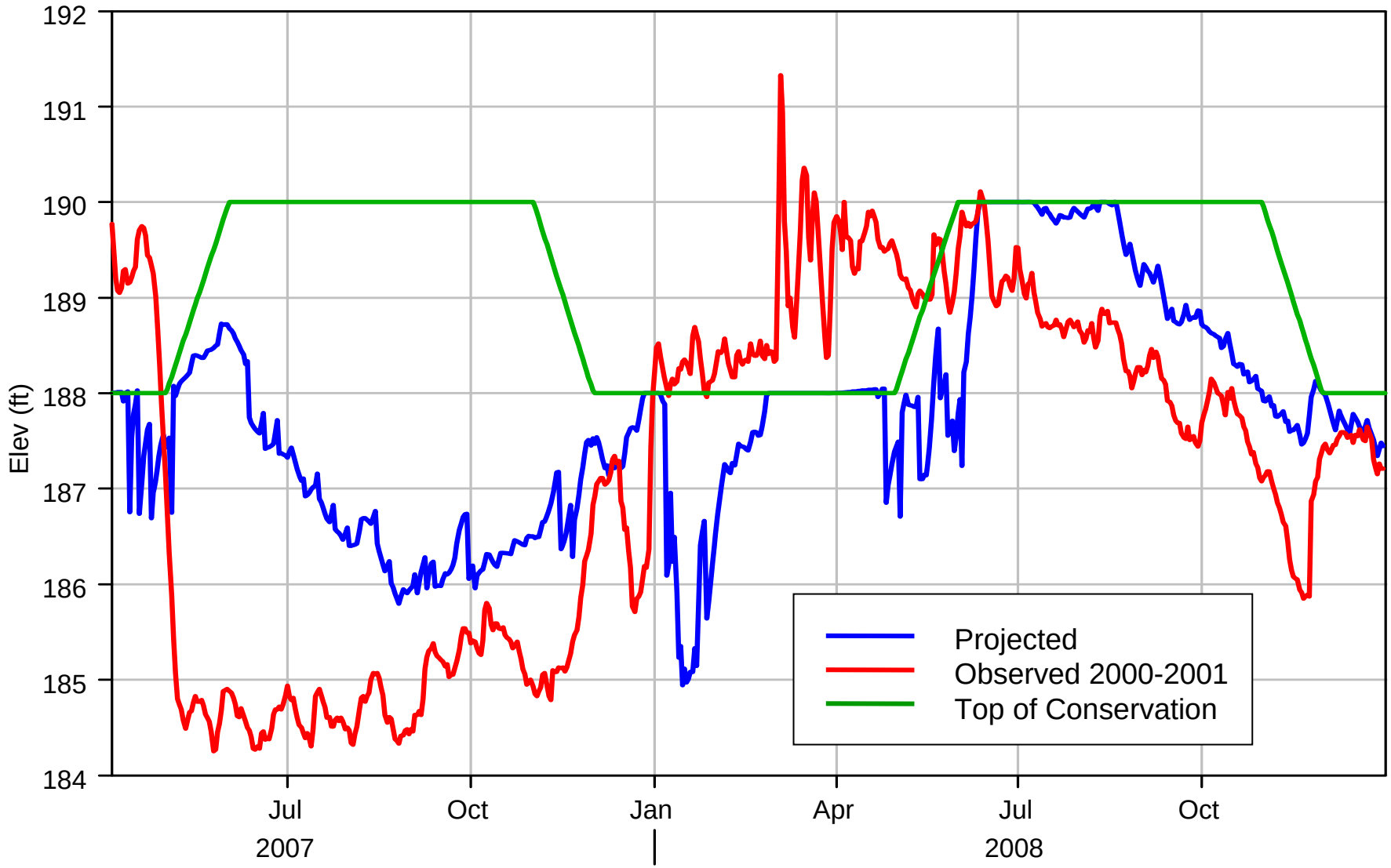


Projected WF George Elevation Assuming Year 2000 Hydrology for the Rest of 2007 Operation under IOP Concept 5 (COE HEC-5 Model 2000-2001 Observed)



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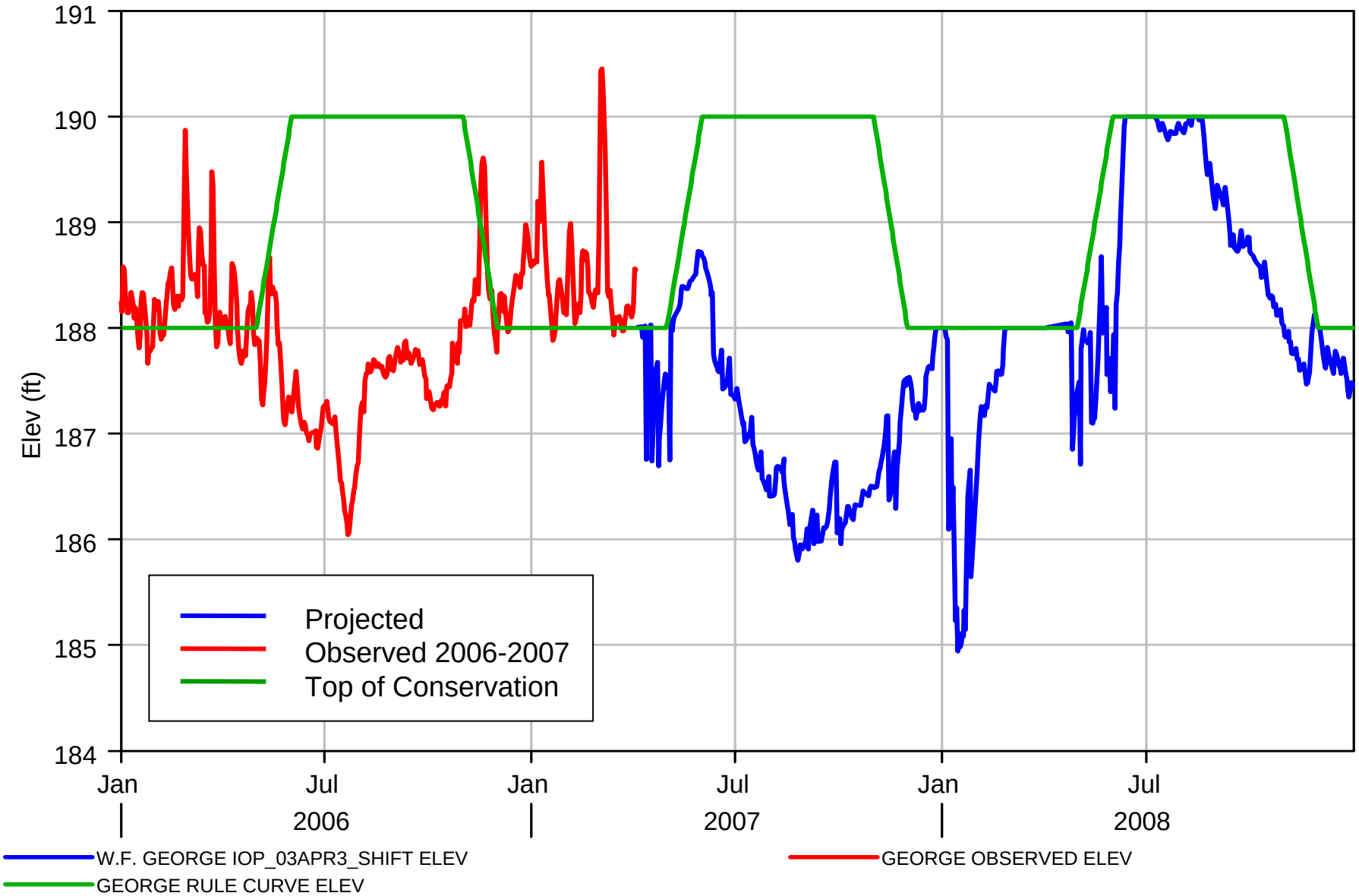
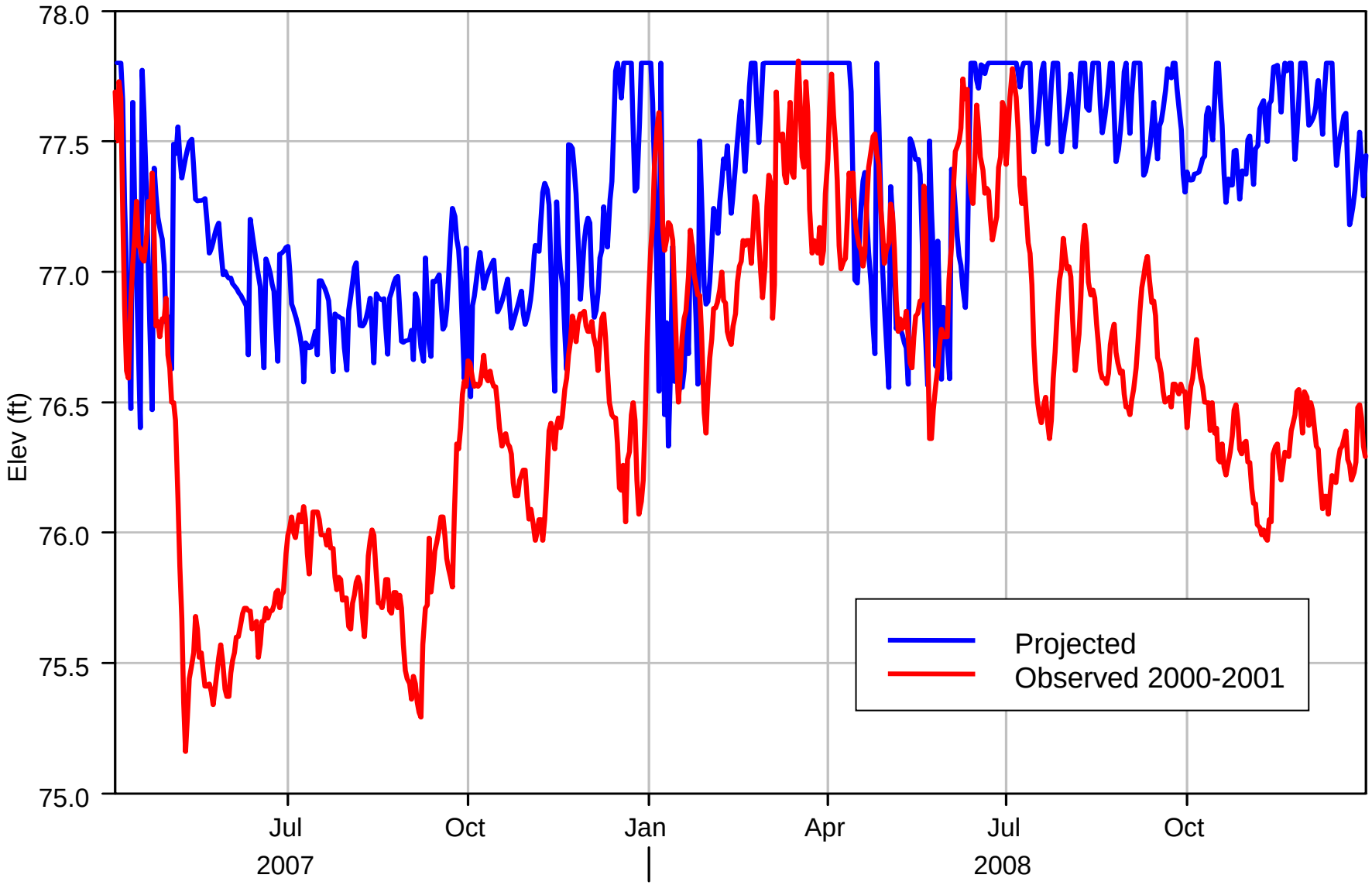
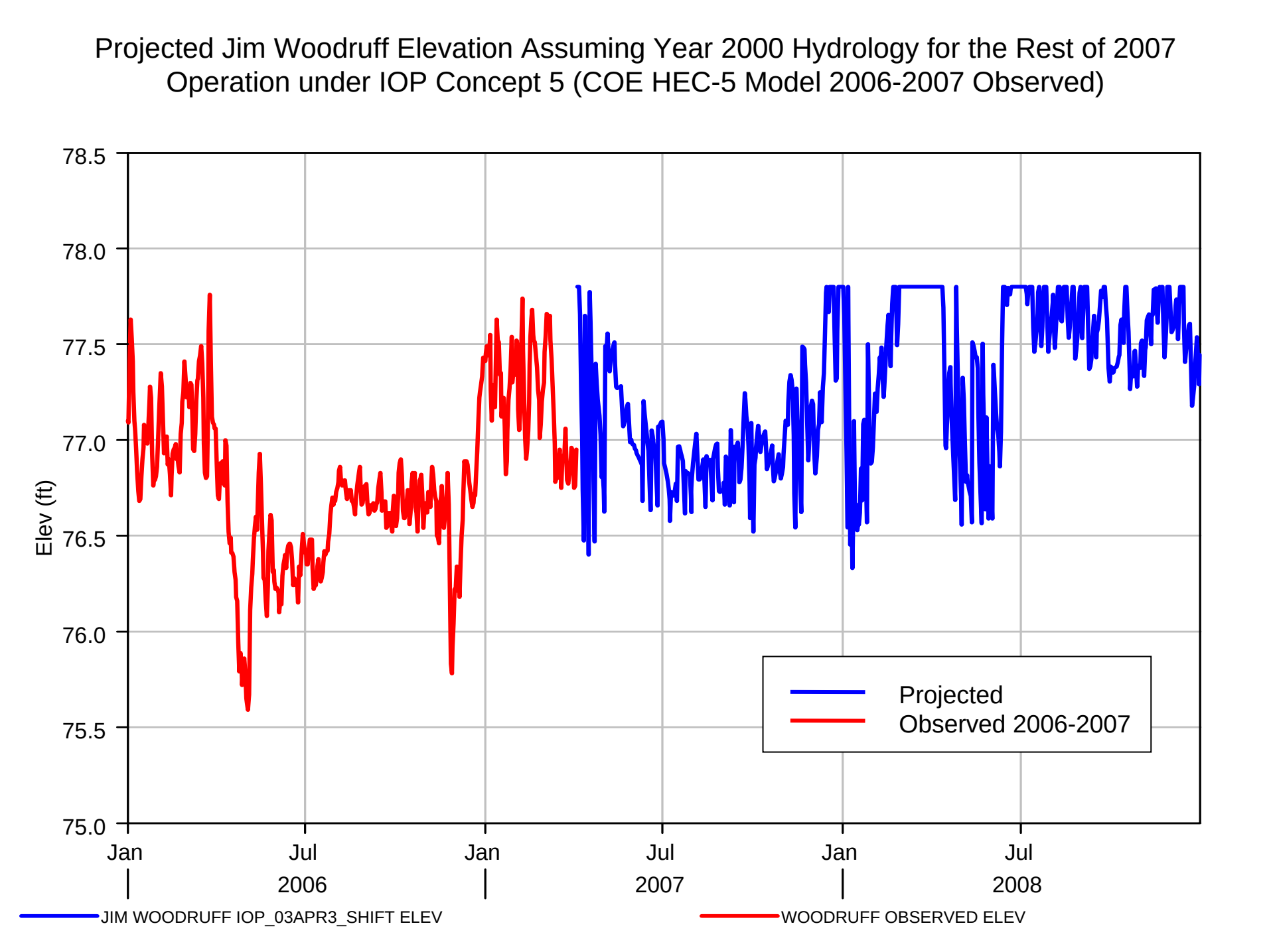
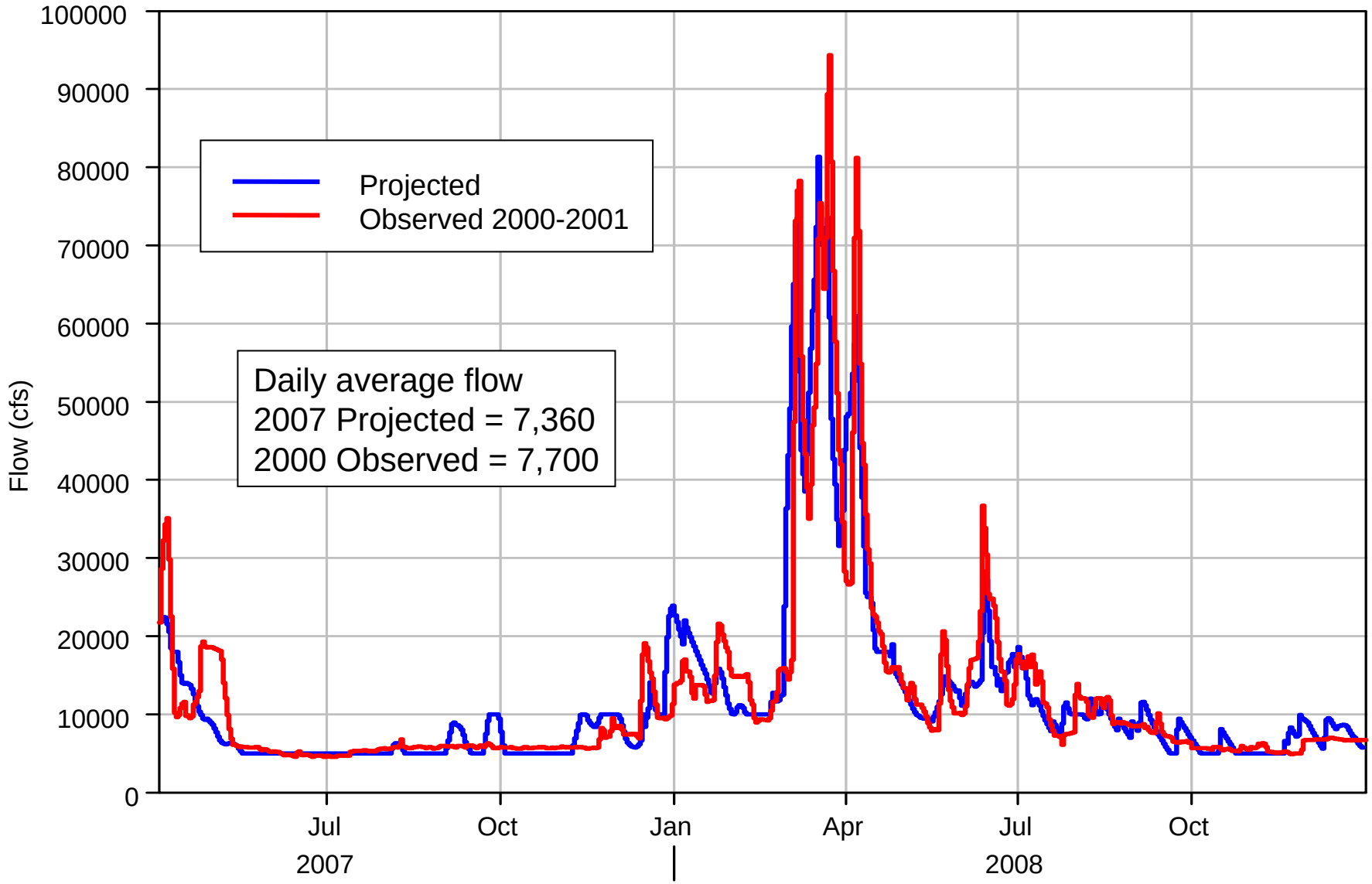


Projected Jim Woodruff Elevation Assuming Year 2000 Hydrology for the Rest of 2007 Operation under IOP Concept 5 (COE HEC-5 Model 2000-2001 Observed)

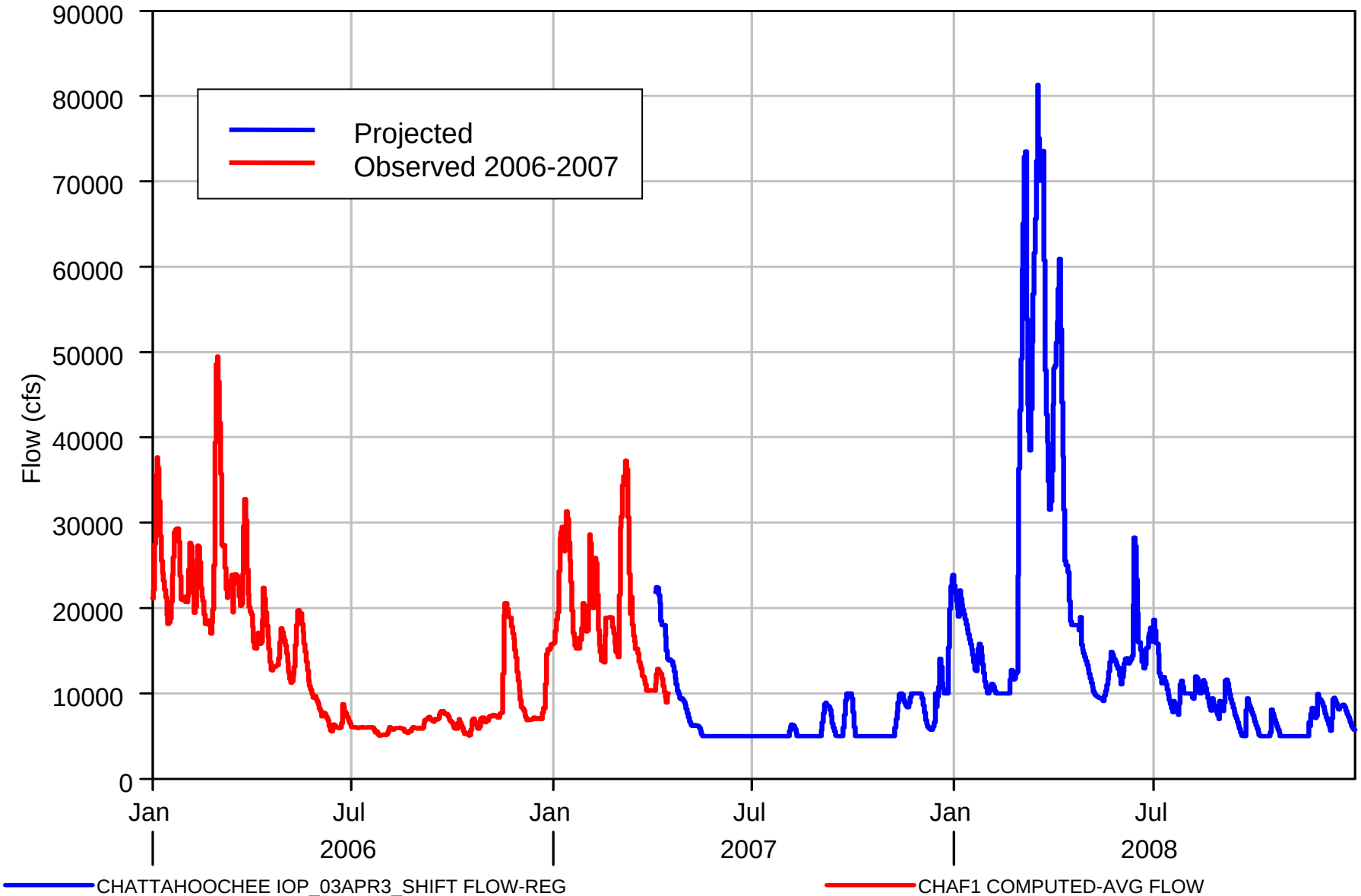



Projected Jim Woodruff Elevation Assuming Year 2000 Hydrology for the Rest of 2007
Operation under IOP Concept 5 (COE HEC-5 Model 2006-2007 Observed)
78.5
78.0
77.5
77.0
76.5
76.0
75.5
75.0
Elev (ft)
Jan
2006
Jul
Jan
2007
Jul
Jan
2008
Jul
Projected
Observed 2006-2007
JIM WOODRUFF IOP_03APR3_SHIFT ELEV
WOODRUFF OBSERVED ELEV

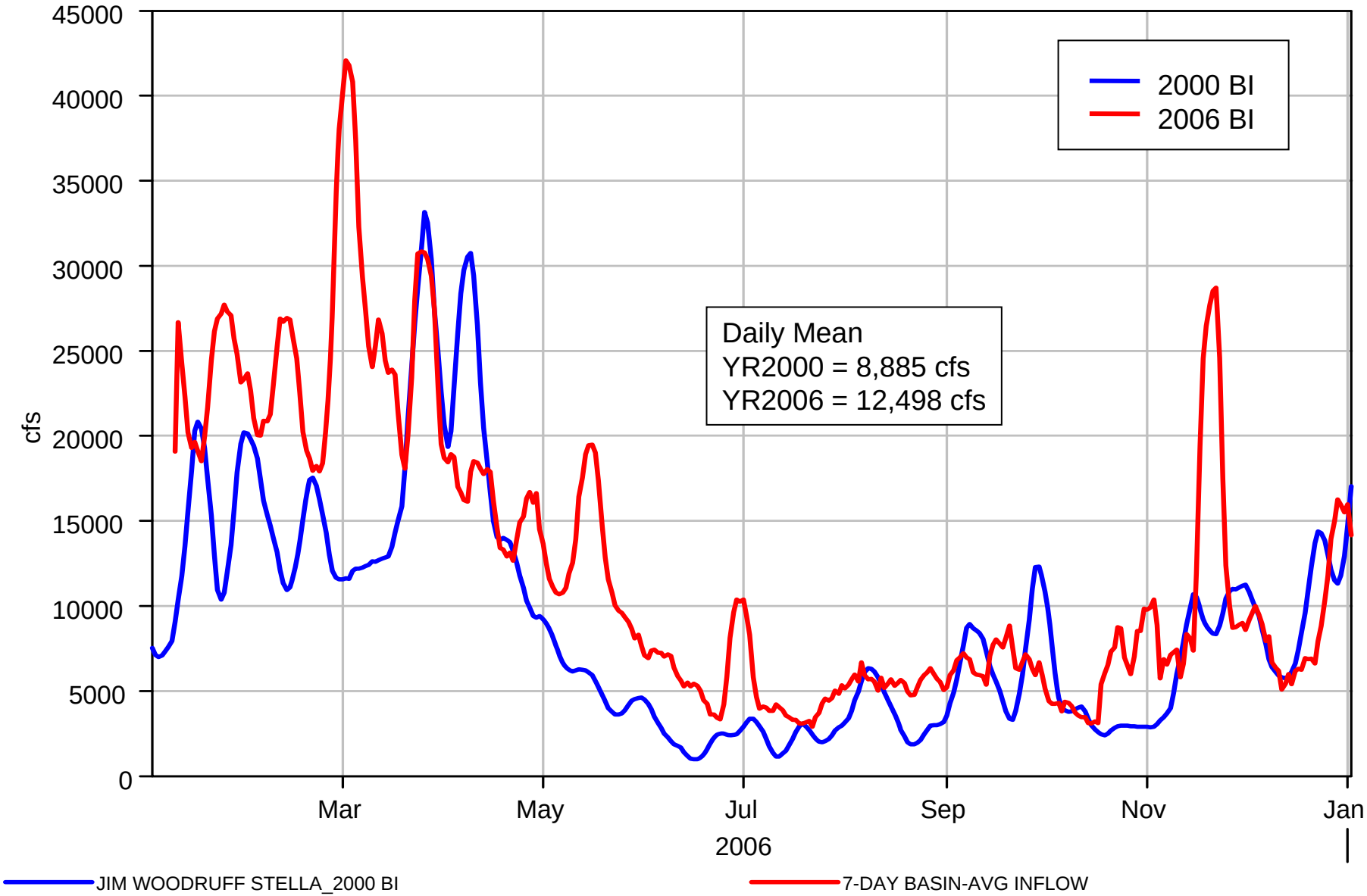
Projected Chattahoochee Flow Assuming Year 2000 Hydrology for the Rest of 2007 Operation under IOP Concept 5 (COE HEC-5 Model 2000-2001 Observed)



Projected Chattahoochee Flow Assuming Year 2000 Hydrology for the Rest of 2007 Operation under IOP Concept 5 (COE HEC-5 Model 20060-2007 Observed)



Comparison of 7-day Basin Inflow



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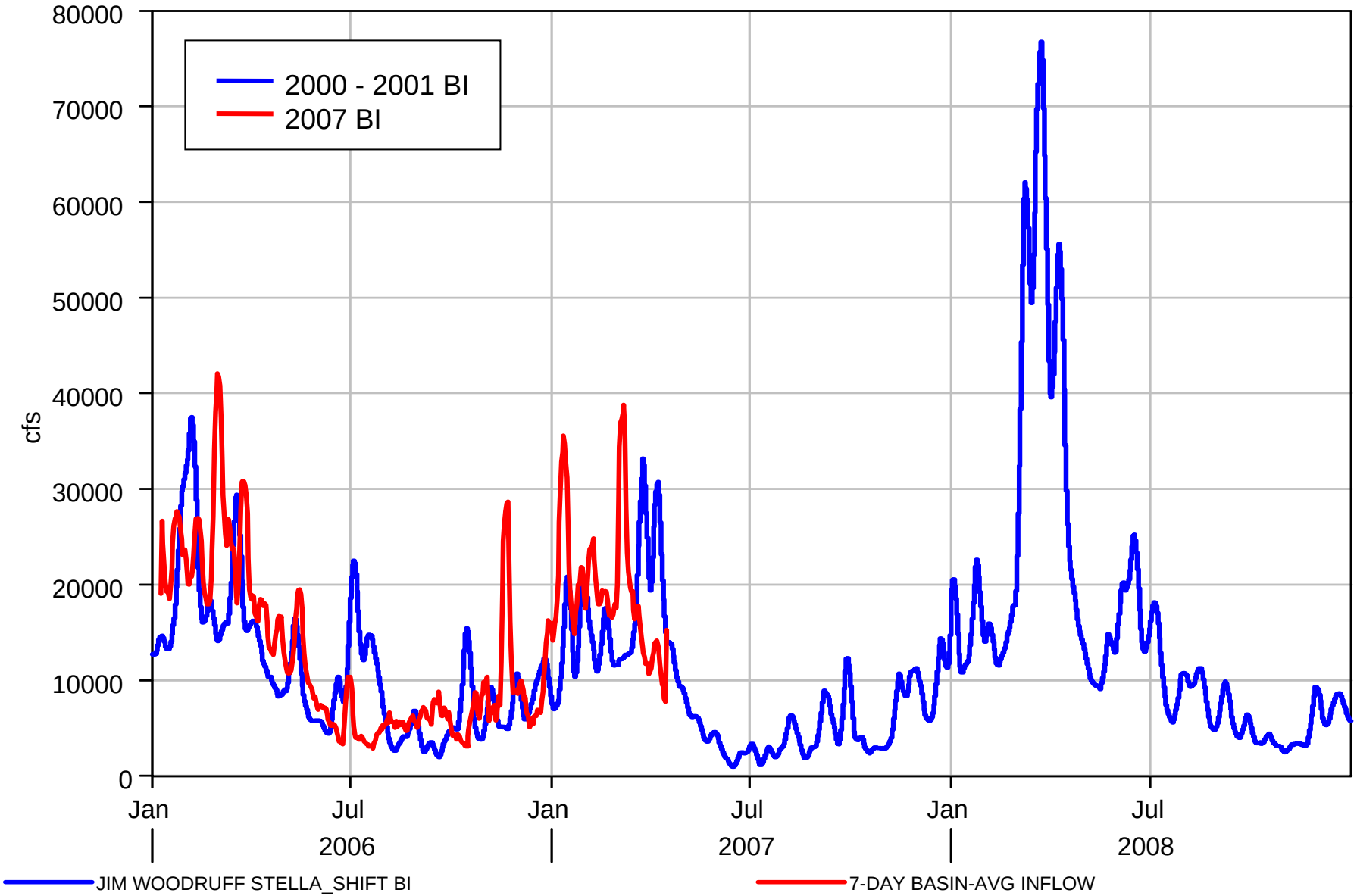

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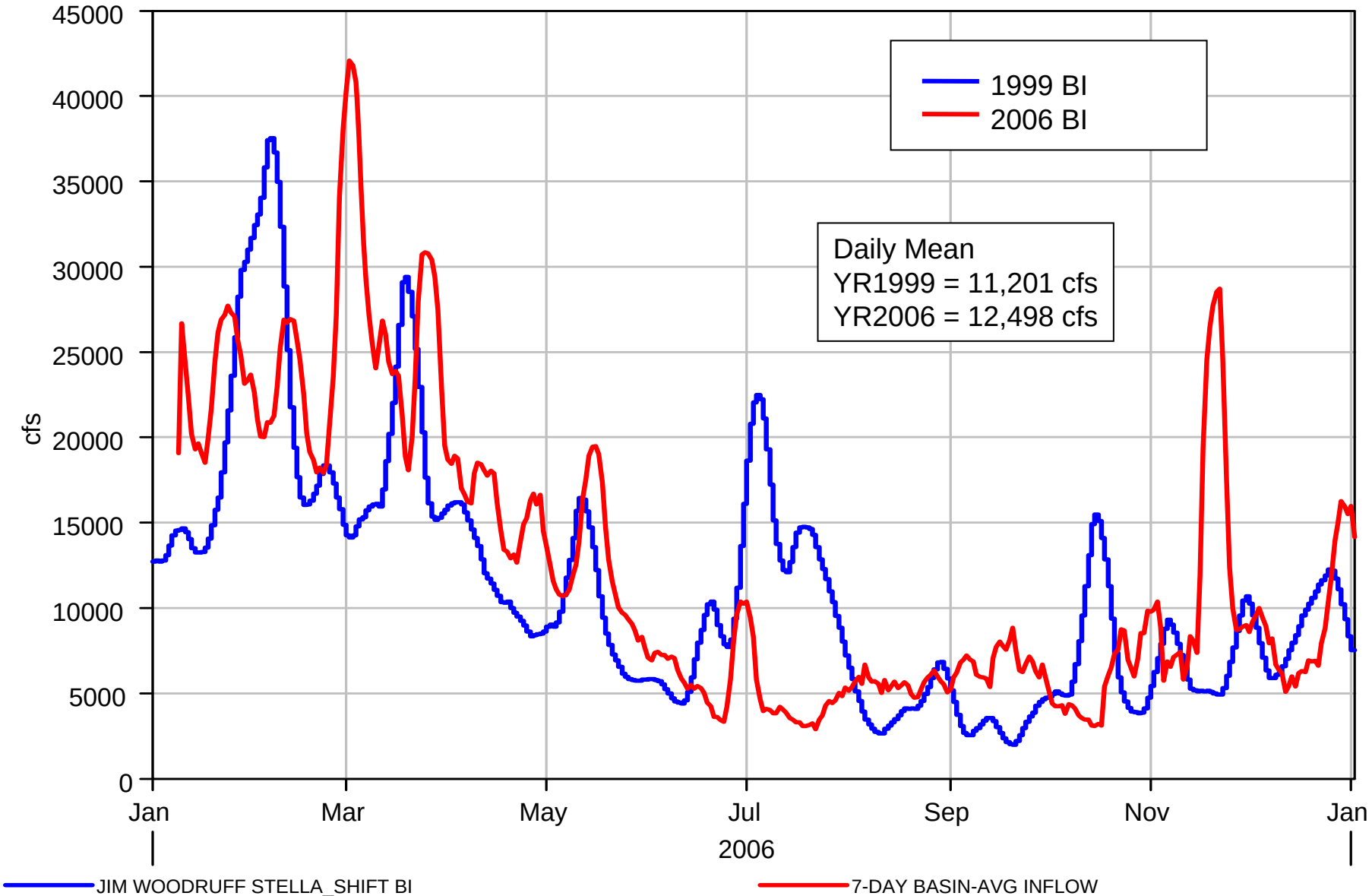

Annual Basin Inflow