

APPENDIX A

HEC-5 MODEL SIMULATION FIGURES

Water Quantity Analysis of Lowering
Chattahoochee River at Peachtree Creek
Minimum Flow

Mobile District

HEC-5 Reservoir Simulation

March 5, 2008

Modeling Assumption

- Current IOP and EDO operations
- Initial Reservoir conditions recorded 27Feb2008
- Year 2000 Demands
- Hydrology Alternatives
 - Year 2000
 - 7Q10 between Buford and Whitesburg, Year 2000 rest of basin
- Minimum Flow
 - Columbus
 - 1850 cfs when WP \geq 621.6
 - 1200 cfs when WP $<$ 621.6
 - Peachtree Minimum Flow Requirement Alternatives
 - 550 cfs
 - 650 cfs
 - 750 cfs
- Approved Variance at West Point and WF George

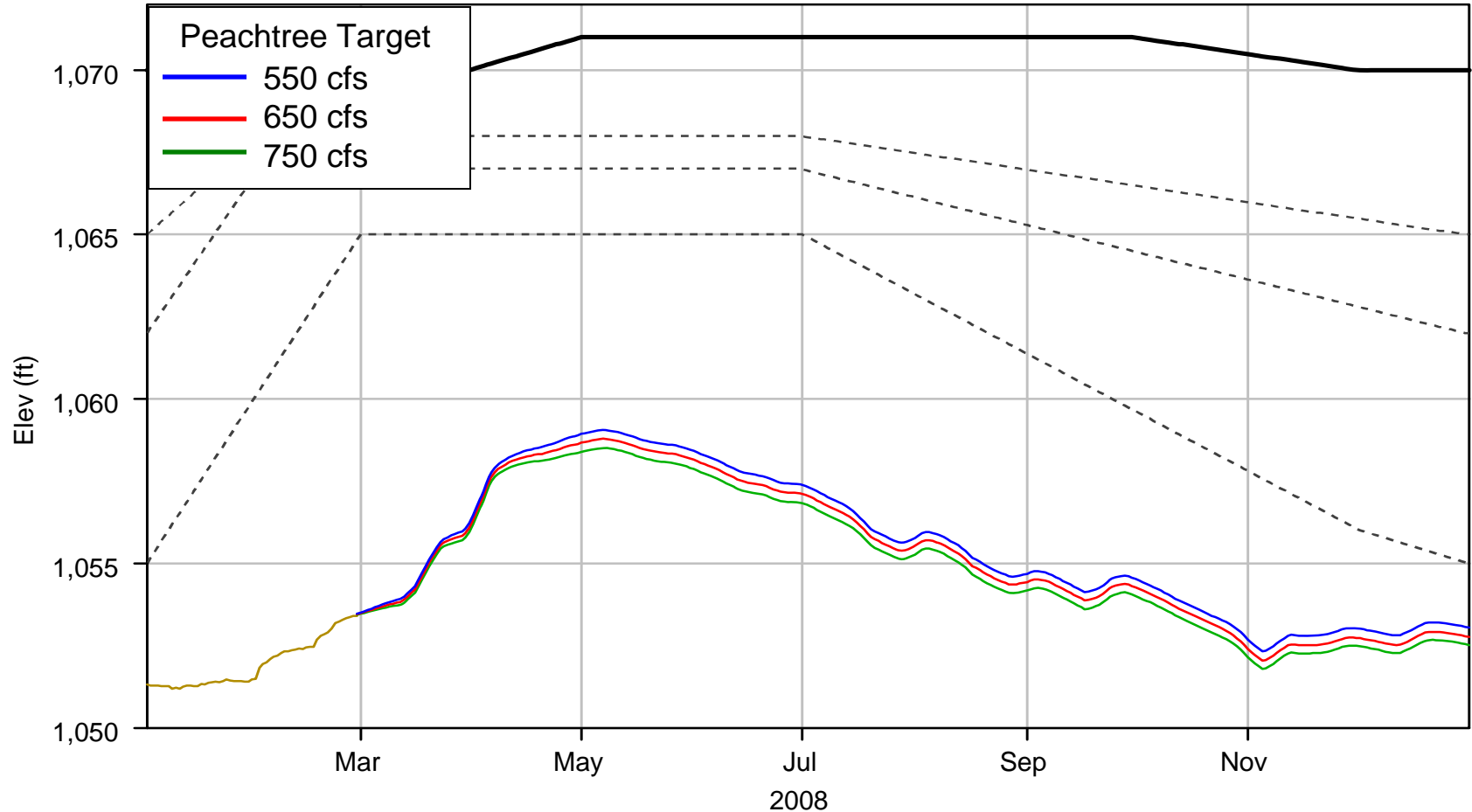
Summary of Impact on 01 May 2008

- Using 2000 Hydrology
 - If we reduce to 650
 - Buford elevation 0.28 feet higher
 - West Point elevation 0.12 feet lower
 - Buford storage increased by 9,169 ac-ft
 - Composite Storage increased by 4,293 ac-ft
 - No impact downstream of West Point
 - If we reduce to 550
 - Buford elevation 0.55 feet higher
 - West Point elevation 0.28 feet lower
 - Buford storage increased by 18,079 ac-ft
 - Composite Storage increased by 11,457 ac-ft
 - No impact downstream of West Point

Summary of Impact on 01 May 2008

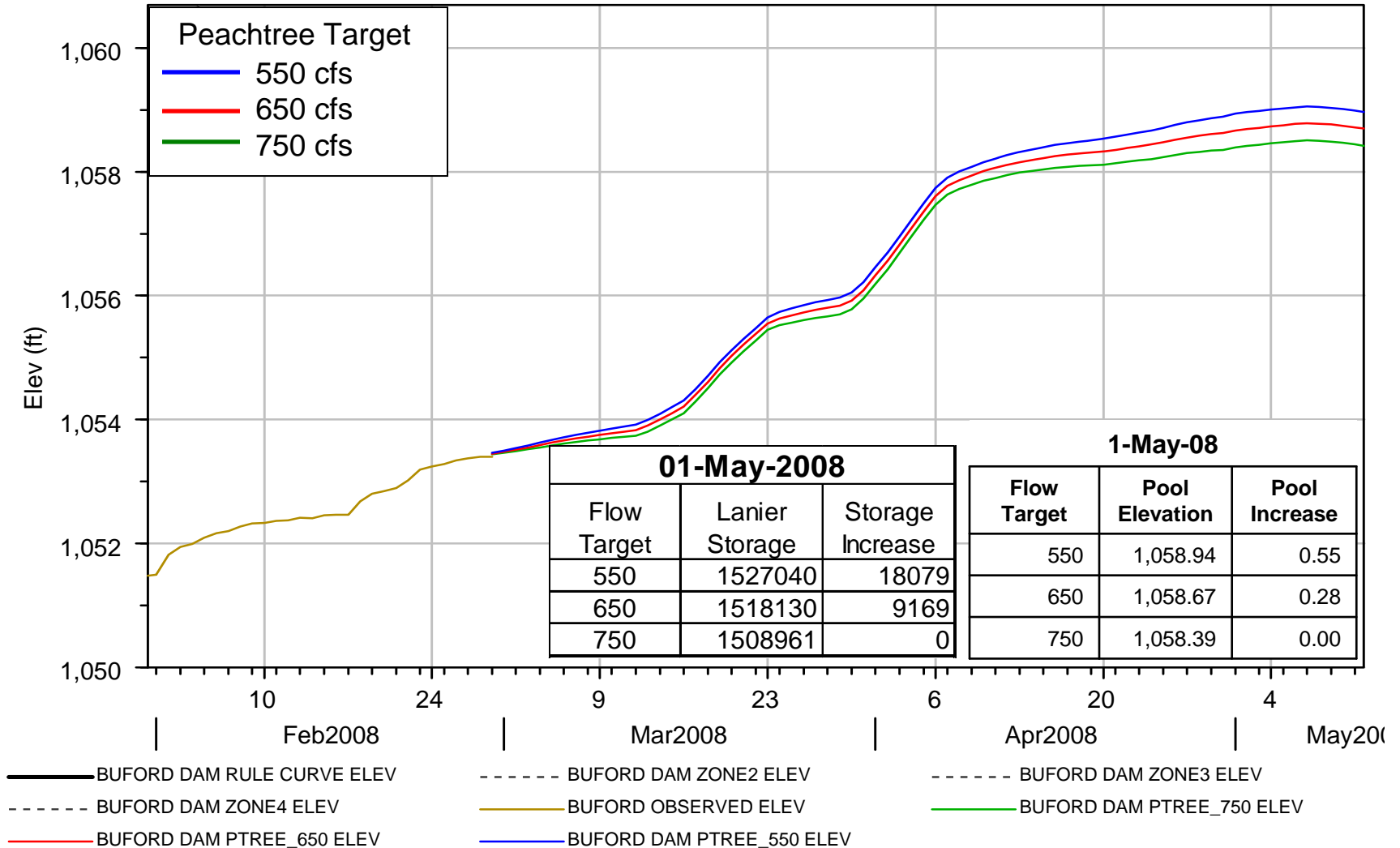
- Using 7Q10 Hydrology
 - If we reduce to 650
 - Buford elevation 0.38 feet higher
 - West Point elevation 0.28 feet lower
 - Buford storage increased by 12,671 ac-ft
 - Composite Storage increased by 6,186 ac-ft
 - No impact downstream of West Point
 - If we reduce to 550
 - Buford elevation 0.77 feet higher
 - West Point elevation 0.42 feet lower
 - Buford storage increased by 25,341 ac-ft
 - Composite Storage increased by 15,677 ac-ft
 - No impact downstream of West Point

Buford 2000 Hydrology

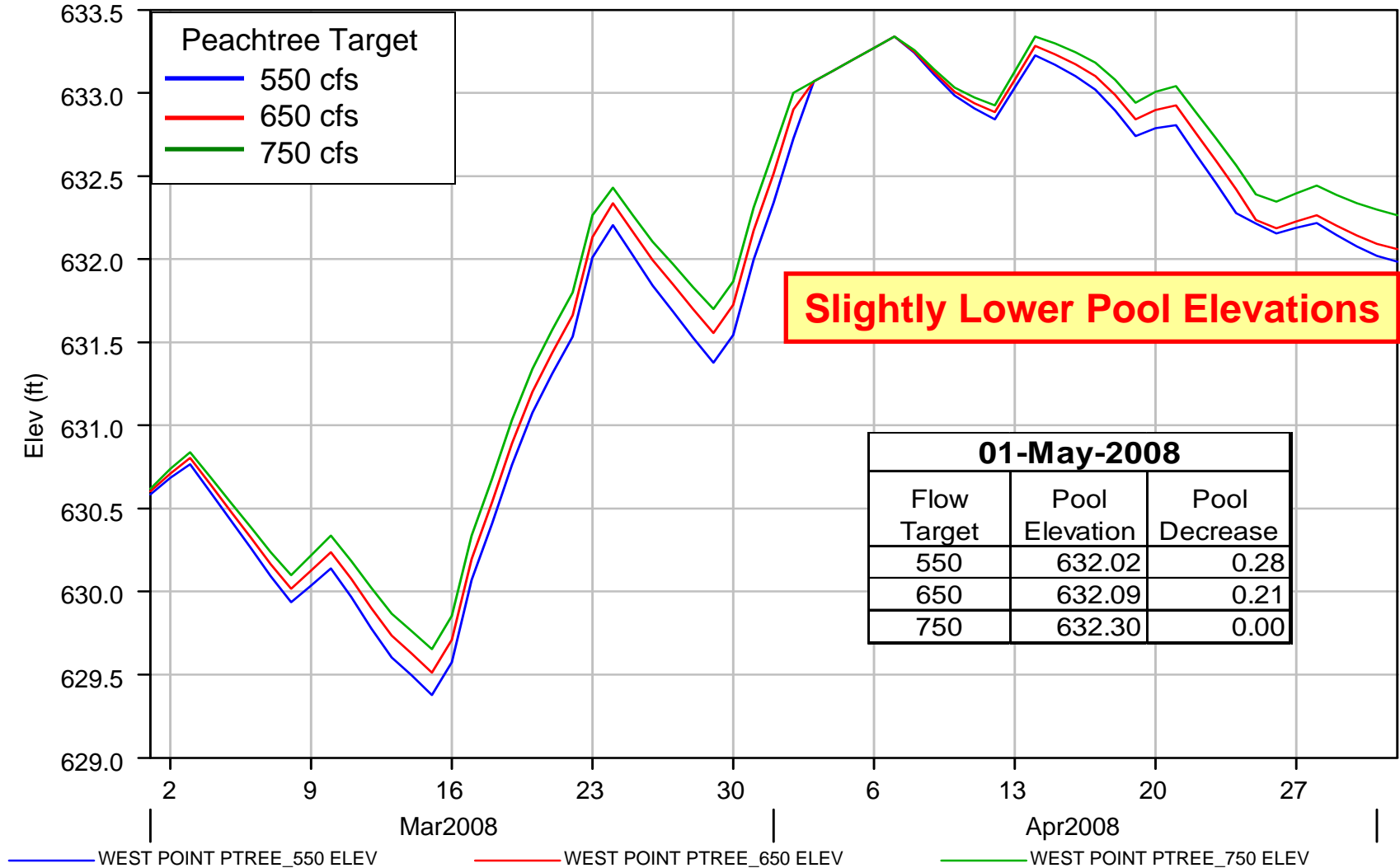


- BUFORD DAM RULE CURVE ELEV
- - - - BUFORD DAM ZONE2 ELEV
- - - - BUFORD DAM ZONE3 ELEV
- - - - BUFORD DAM ZONE4 ELEV
- BUFORD DAM PTREE_750 ELEV
- BUFORD DAM PTREE_650 ELEV
- BUFORD DAM PTREE_550 ELEV
- BUFORD OBSERVED ELEV

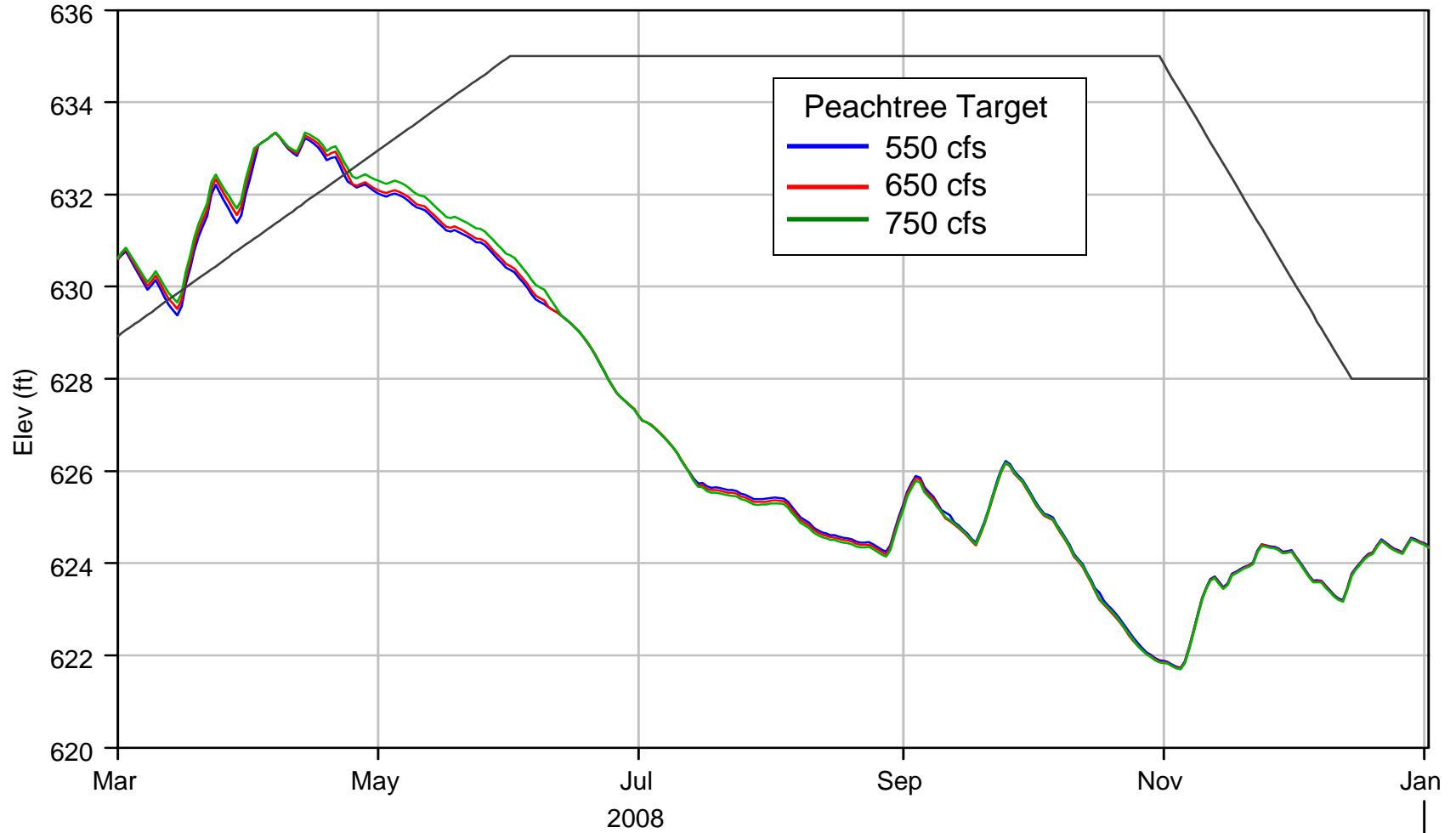
Buford 2000 Hydrology



West Point 2000 Hydrology



West Point 2000 Hydrology

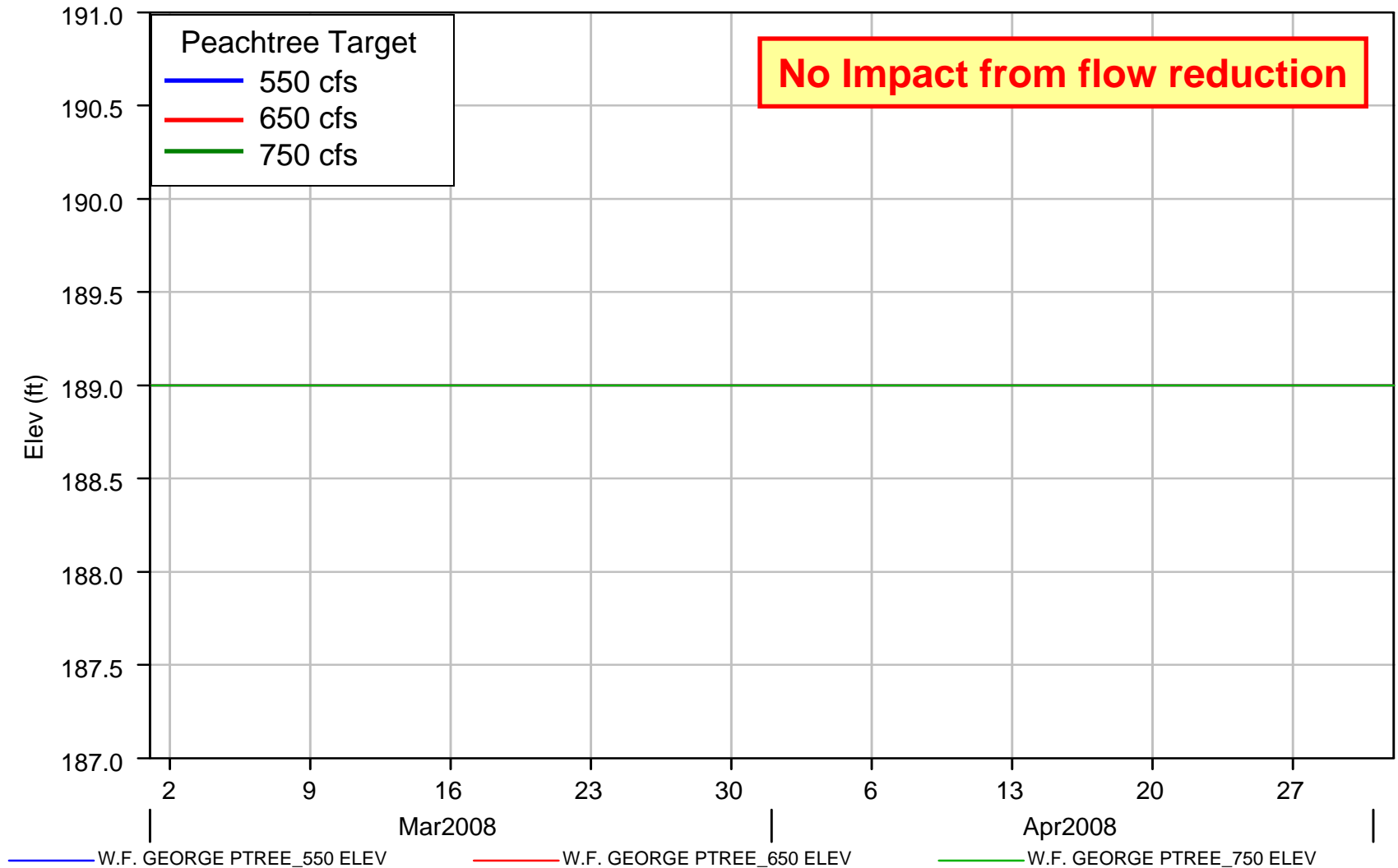


WEST POINT PTREE_550 ELEV
WEST POINT RULE CURVE ELEV

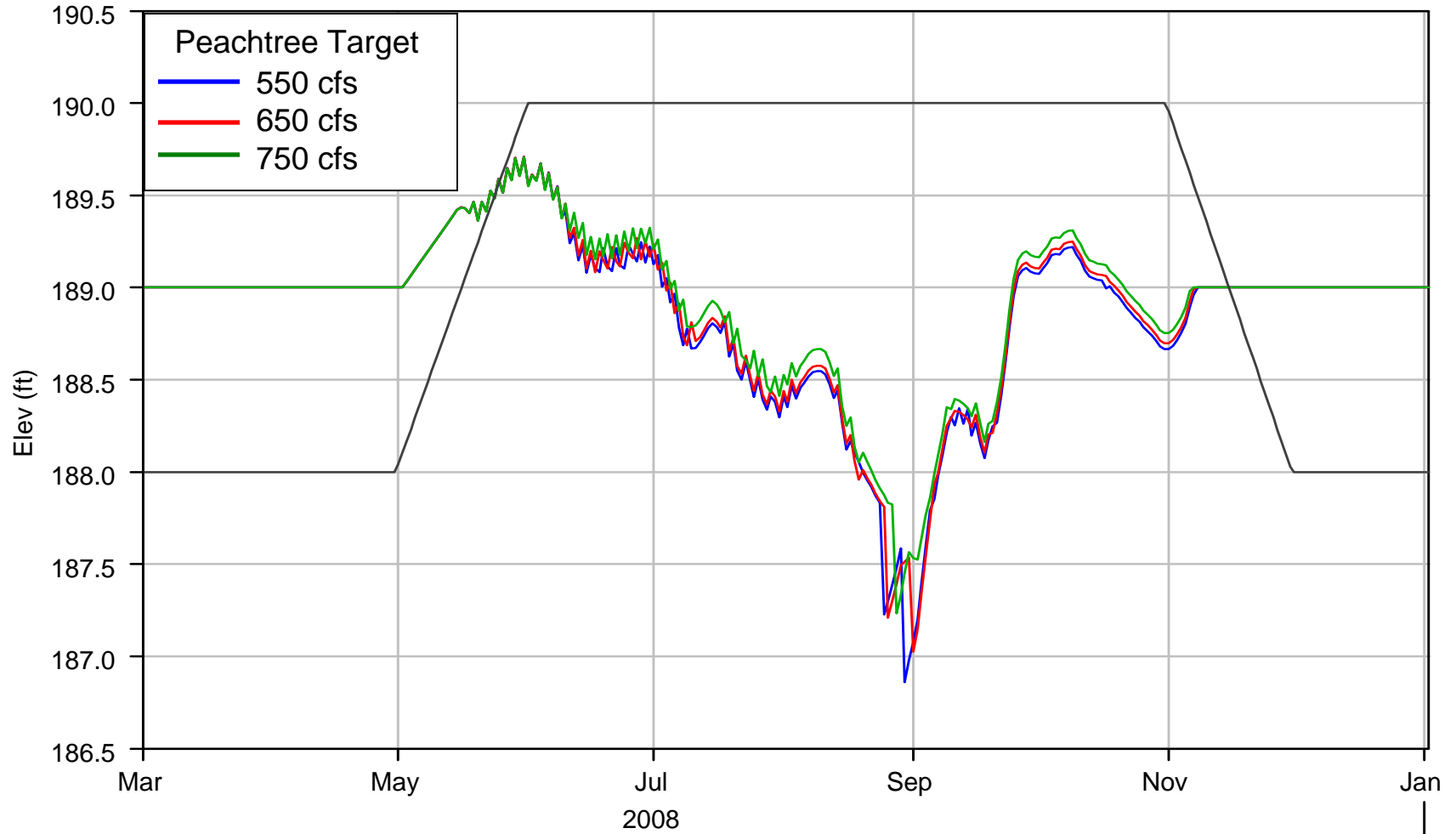
WEST POINT PTREE_650 ELEV

WEST POINT PTREE_750 ELEV

WF George 2000 Hydrology



WF George 2000 Hydrology

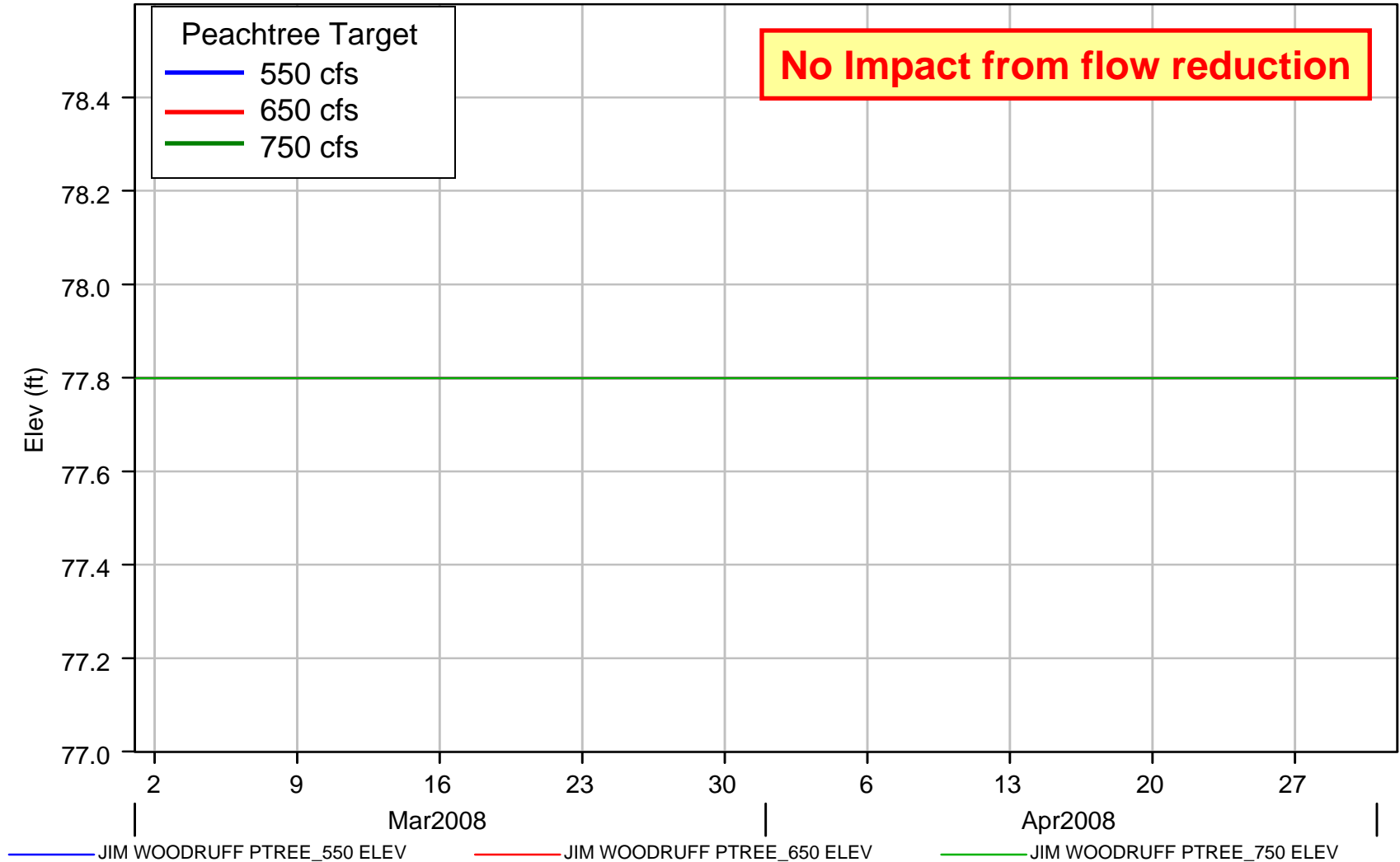


— W.F. GEORGE PTREE_550 ELEV
— W.F. GEORGE RULE CURVE ELEV

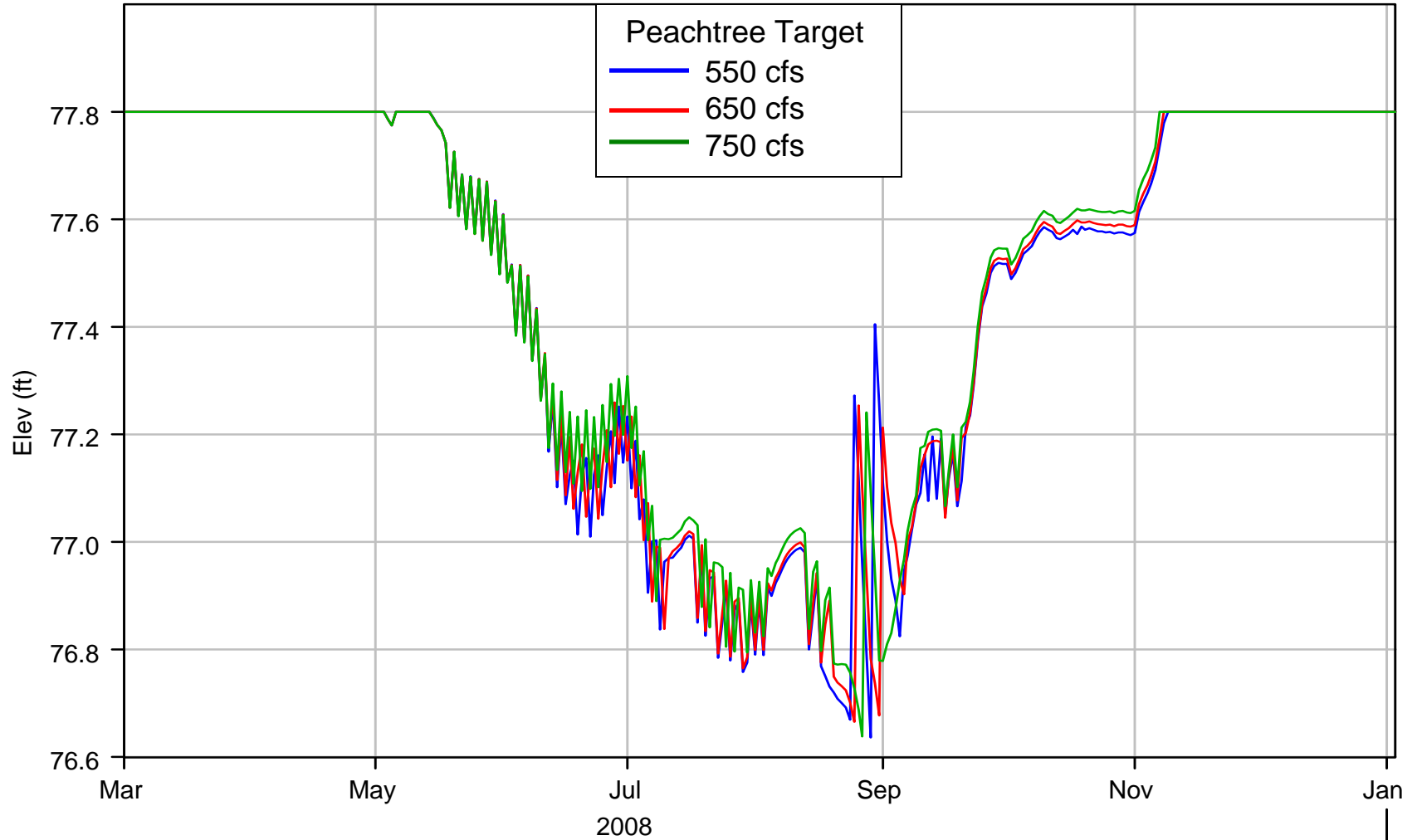
— W.F. GEORGE PTREE_650 ELEV

— W.F. GEORGE PTREE_750 ELEV

Jim Woodruff 2000 Hydrology



Jim Woodruff 2000 Hydrology

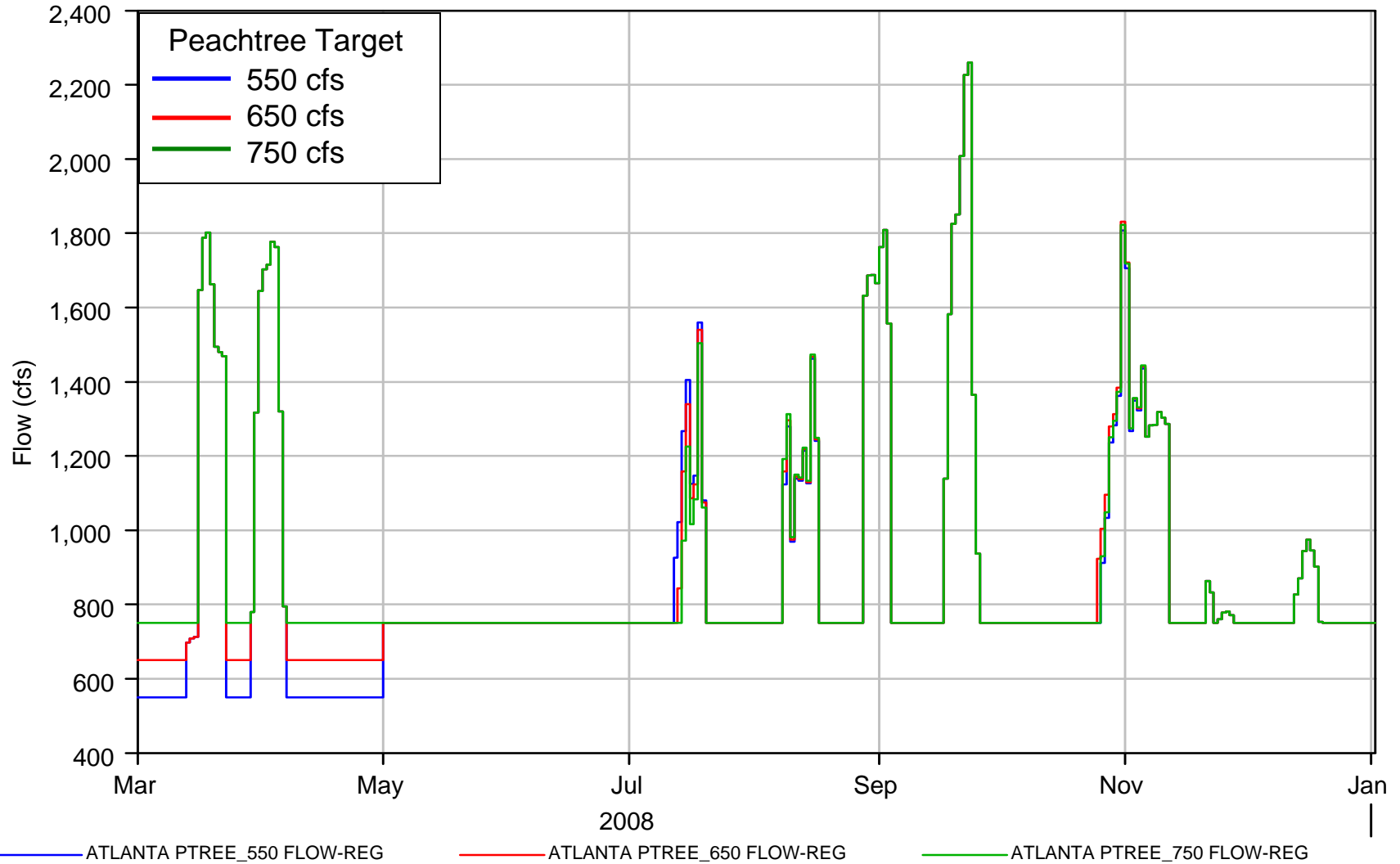


JIM WOODRUFF PTREE_550 ELEV

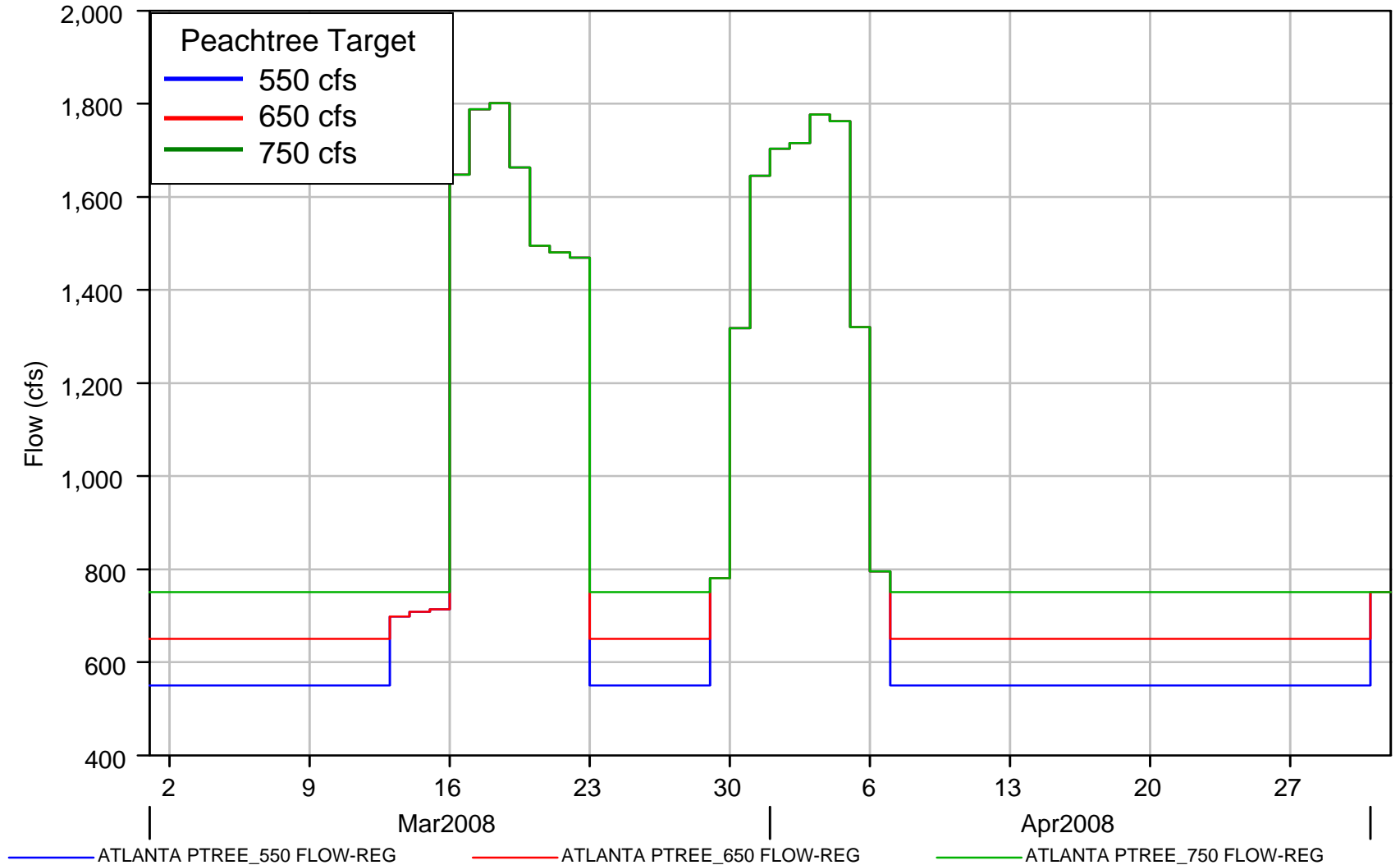
JIM WOODRUFF PTREE_650 ELEV

JIM WOODRUFF PTREE_750 ELEV

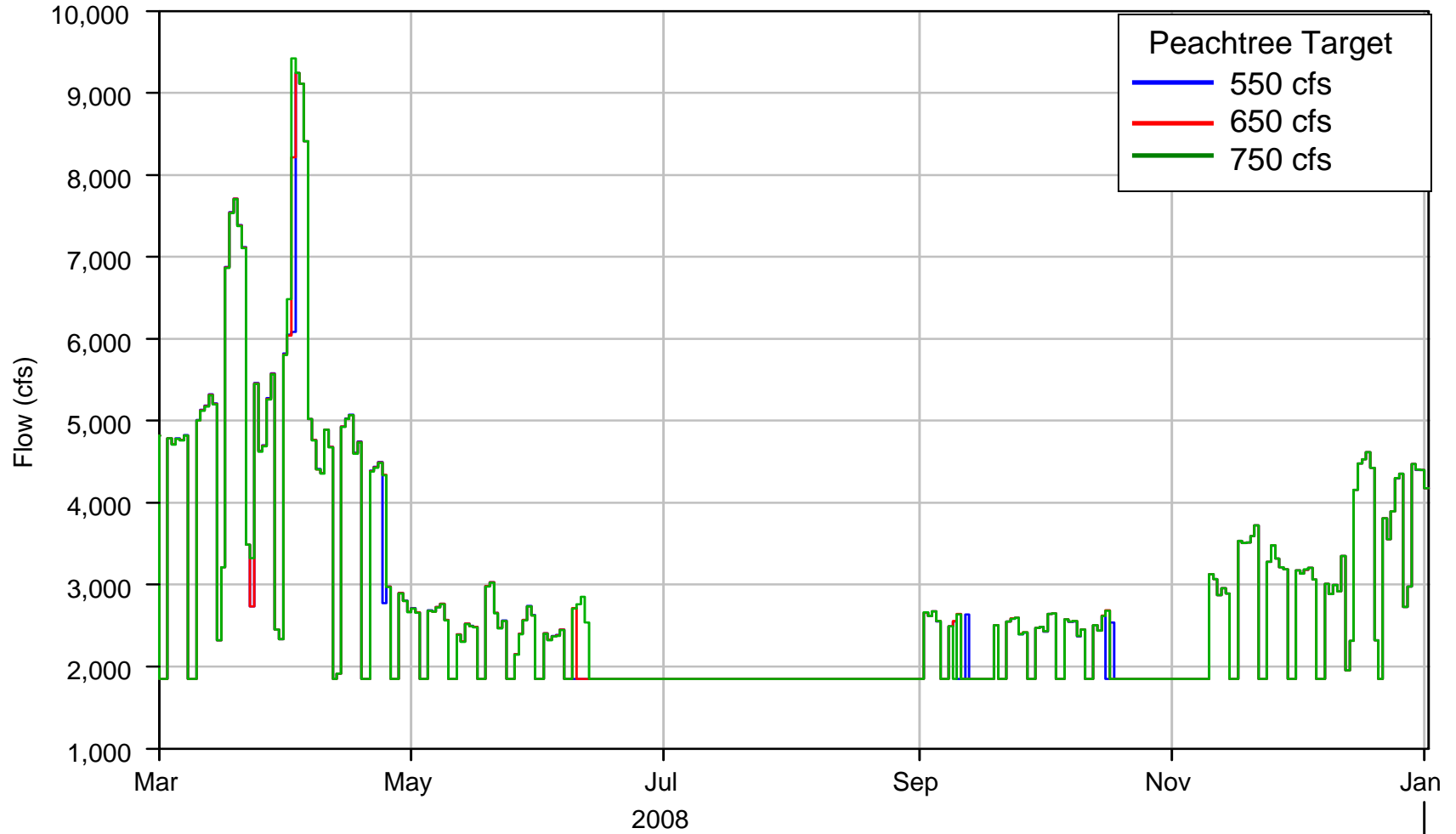
Atlanta 2000 Hydrology



Atlanta 2000 Hydrology



Columbus 2000 Hydrology

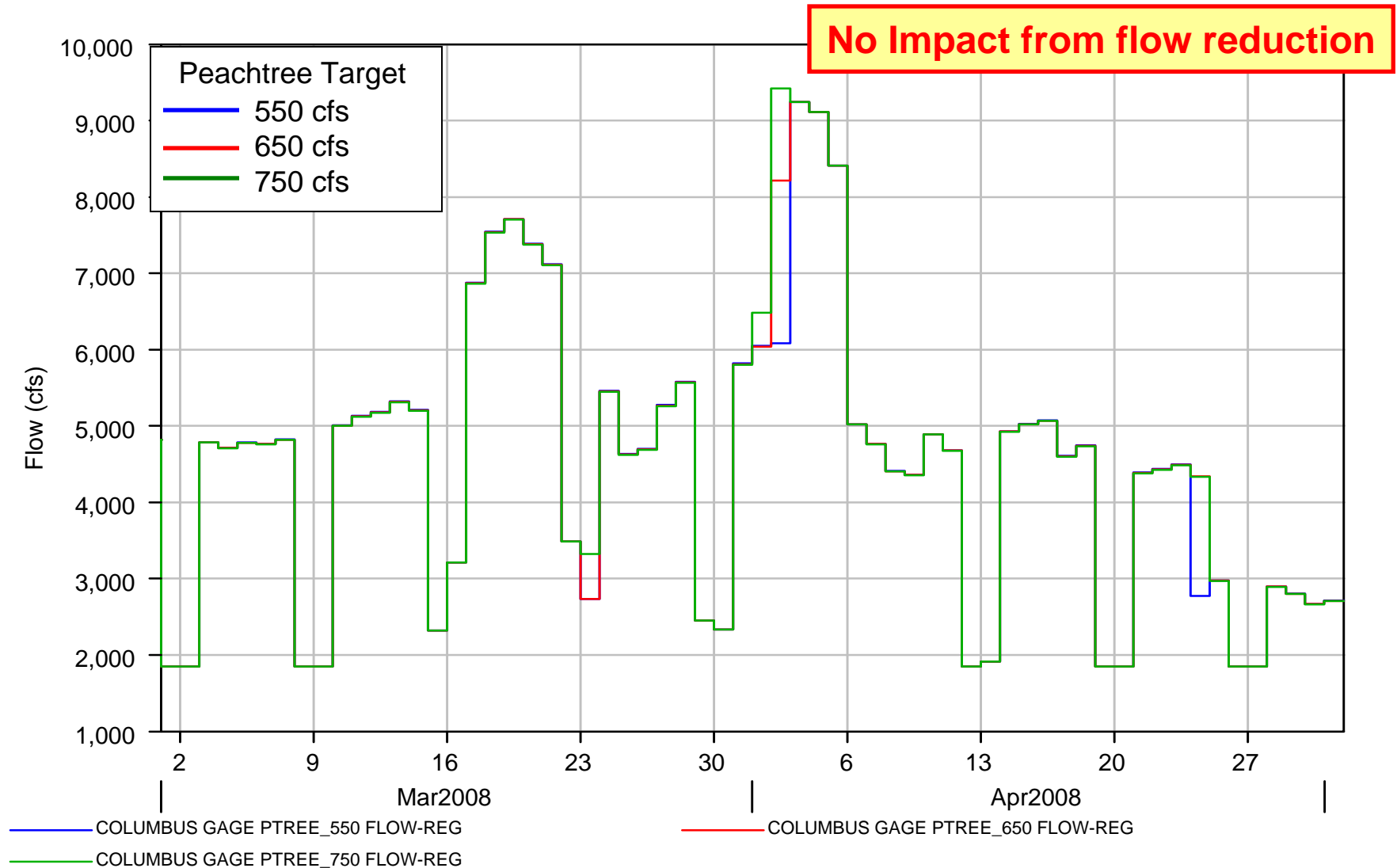


— COLUMBUS GAGE PTREE_550 FLOW-REG

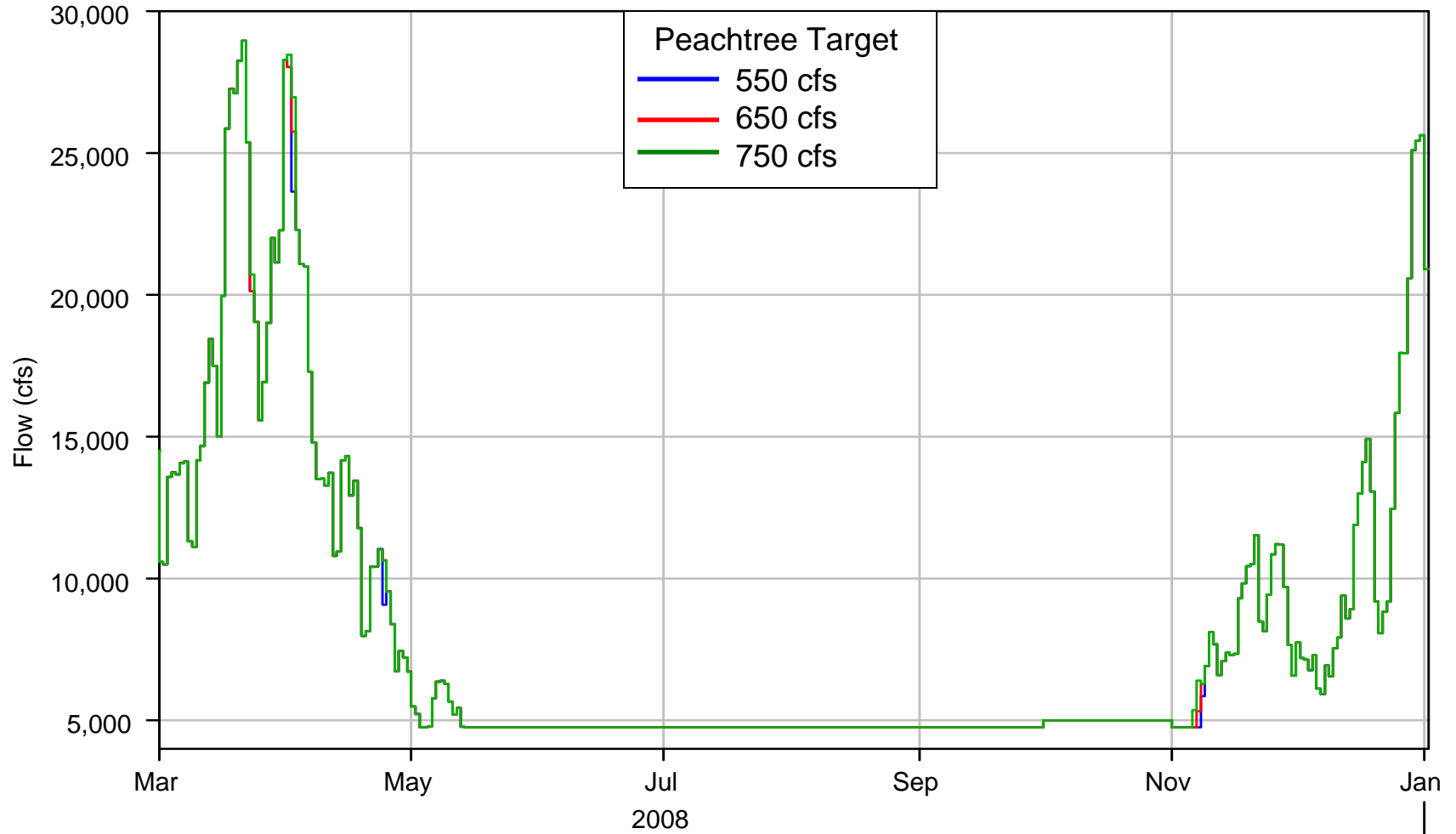
— COLUMBUS GAGE PTREE_650 FLOW-REG

— COLUMBUS GAGE PTREE_750 FLOW-REG

Columbus 2000 Hydrology



Chattahoochee 2000 Hydrology

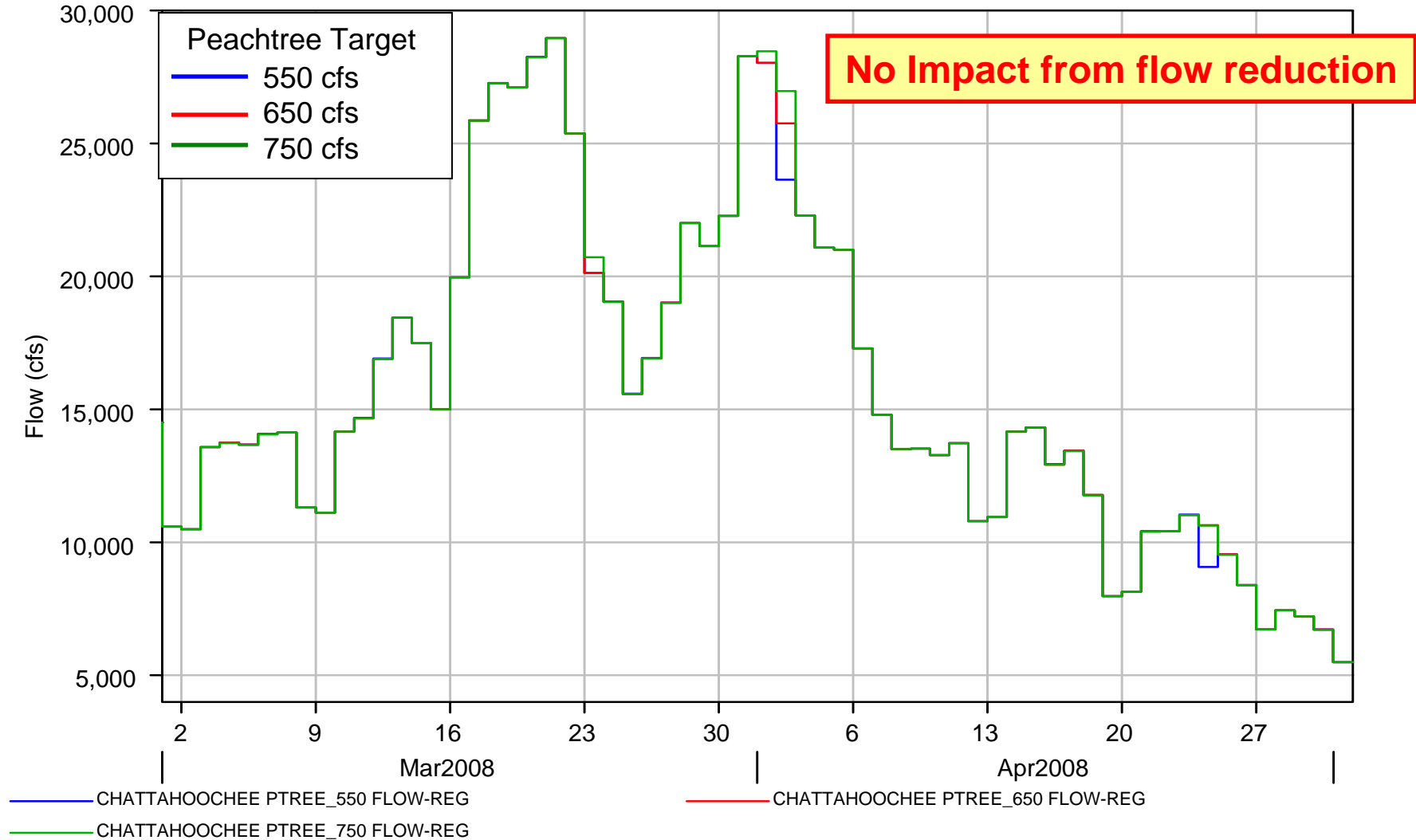


CHATTAHOOCHEE PTREE_550 FLOW-REG

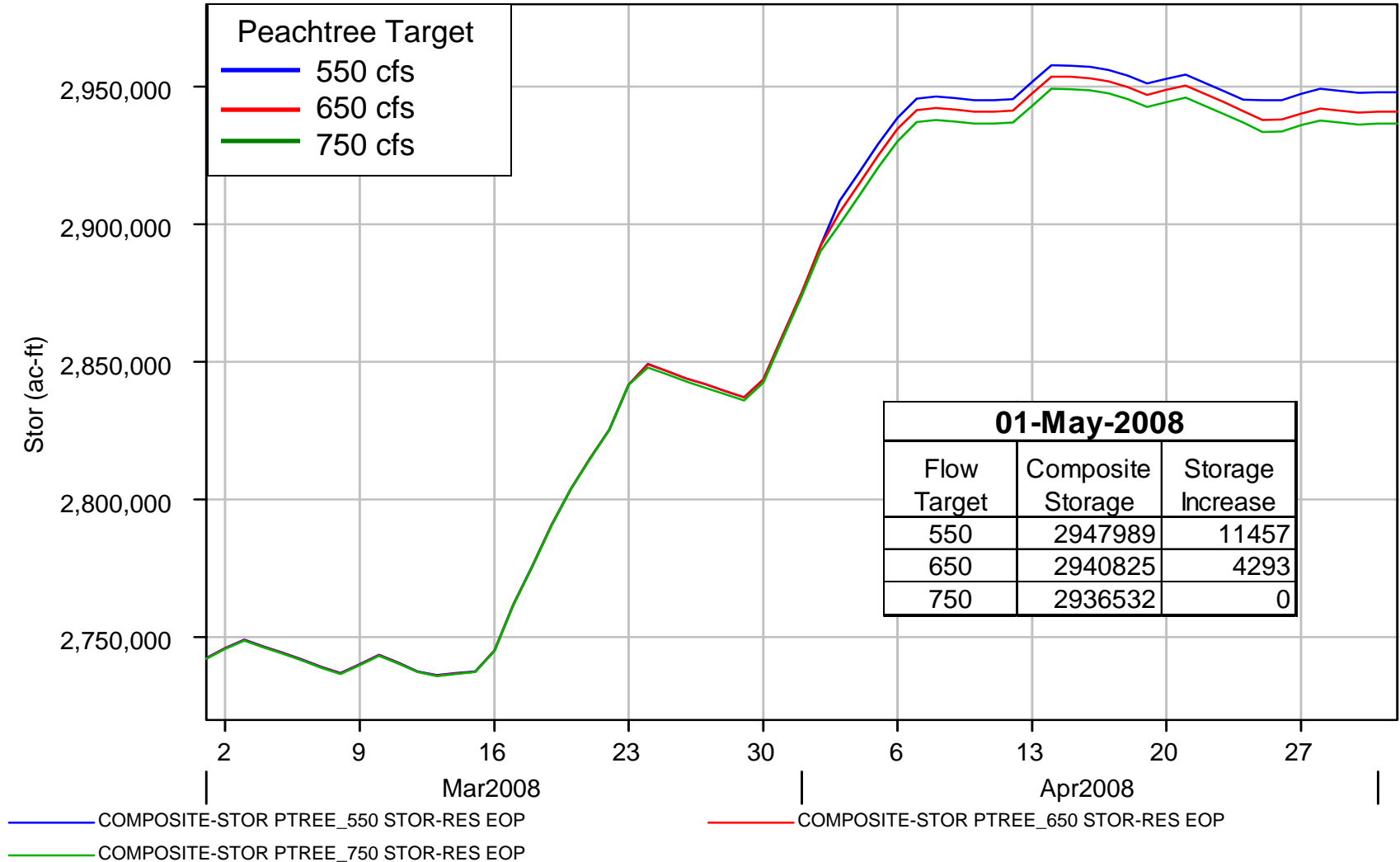
CHATTAHOOCHEE PTREE_650 FLOW-REG

CHATTAHOOCHEE PTREE_750 FLOW-REG

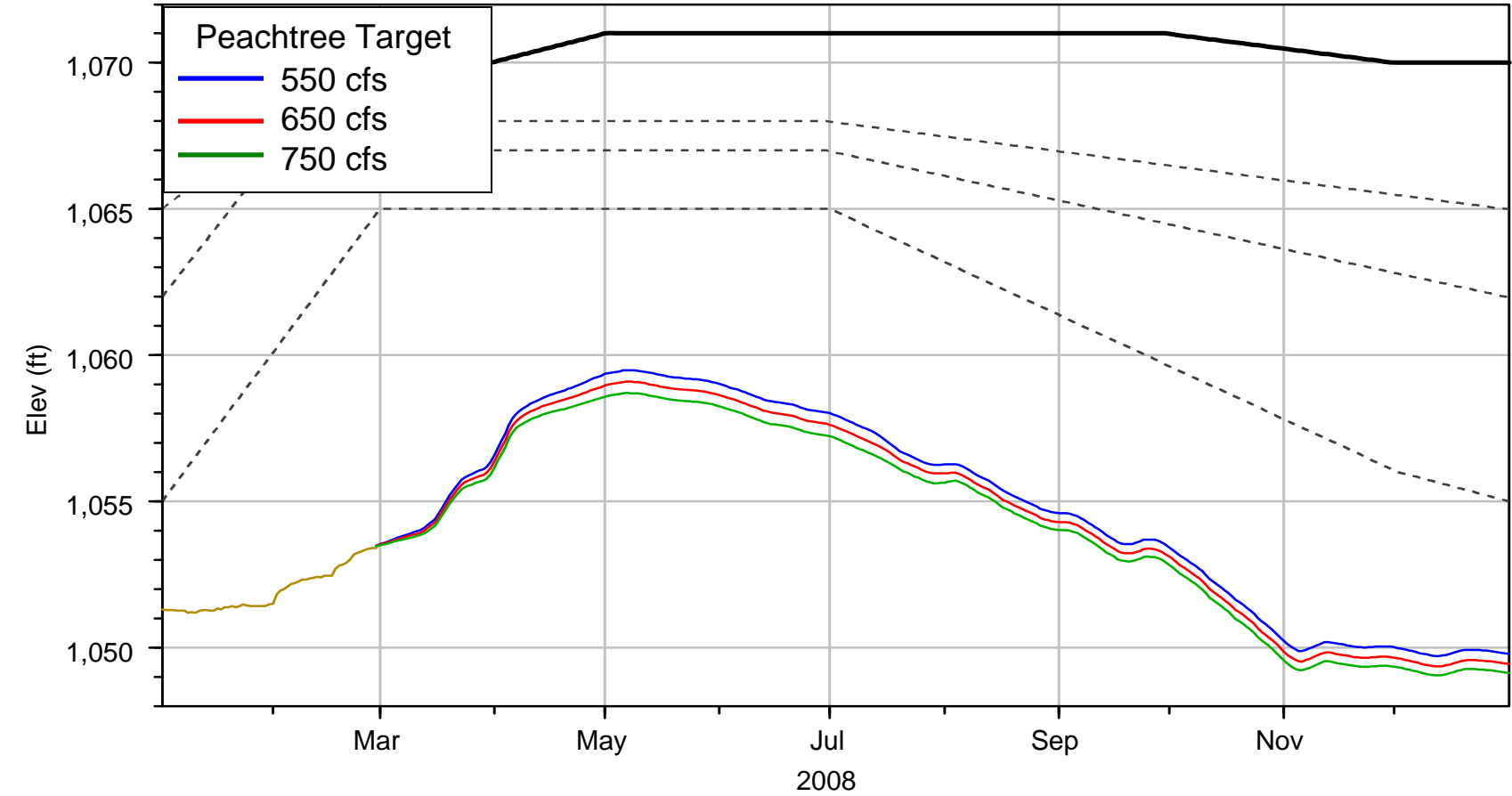
Chattahoochee 2000 Hydrology



Composite Storage Year 2000 Hydrology

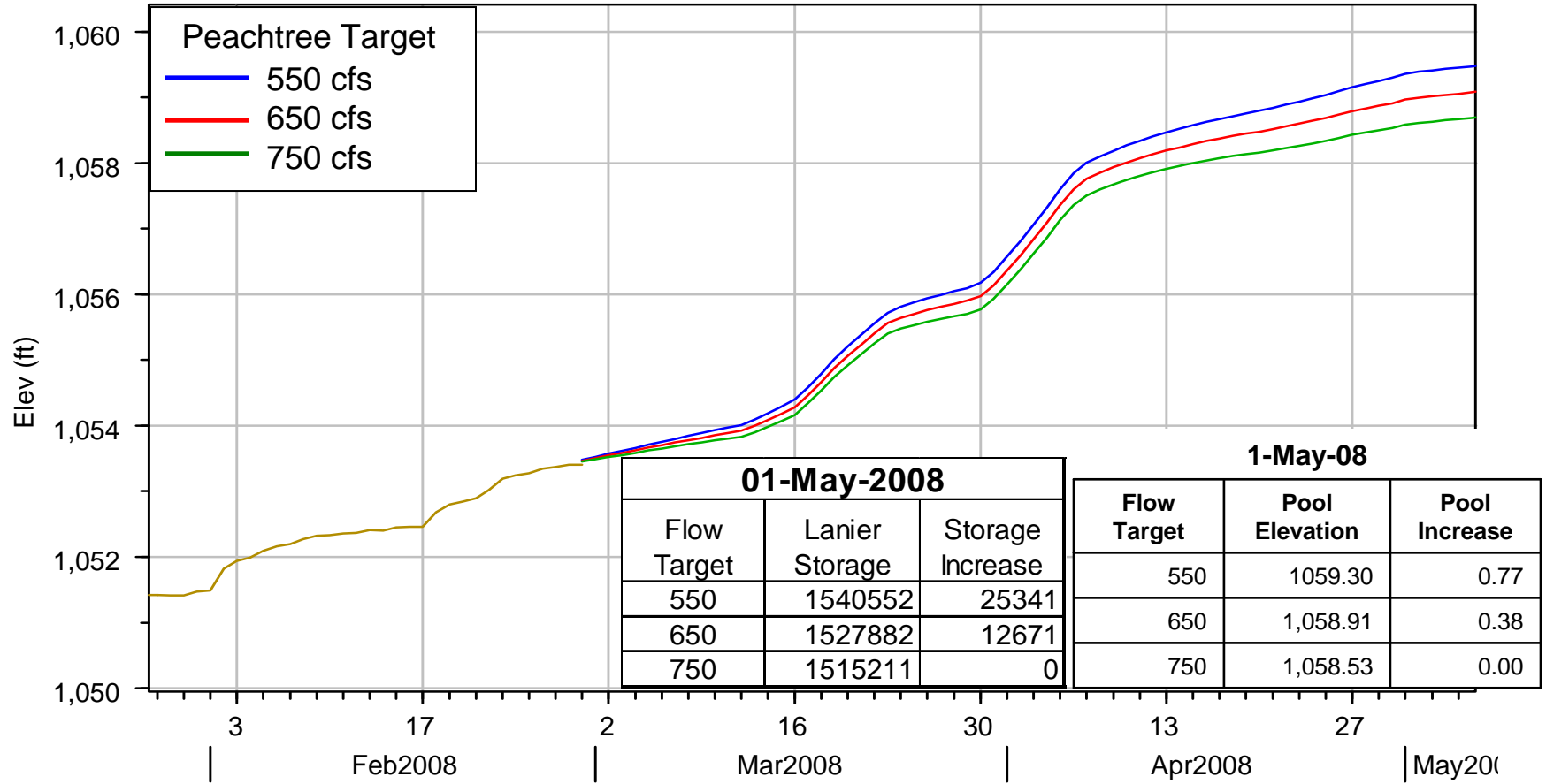


Buford 7Q10 Hydrology



- BUFORD DAM PTREE_550_7Q10 ELEV
- BUFORD DAM PTREE_650_7Q10 ELEV
- BUFORD DAM PTREE_750_7Q10 ELEV
- BUFORD DAM RULE CURVE ELEV
- BUFORD DAM ZONE2 ELEV
- BUFORD DAM ZONE3 ELEV
- BUFORD DAM ZONE4 ELEV
- BUFORD OBSERVED ELEV

Buford 7Q10 Hydrology

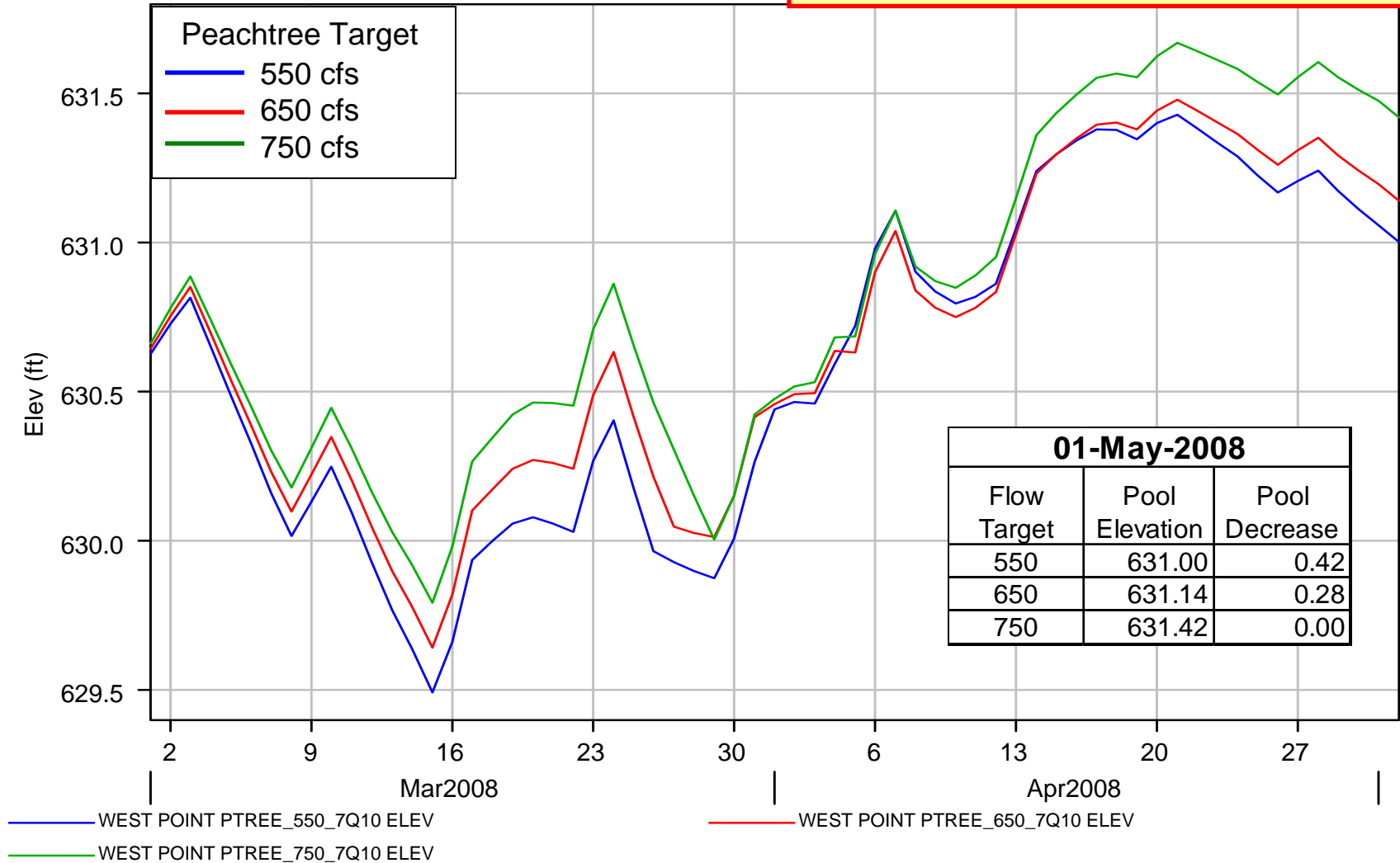


— BUFORD DAM PTREE_550_7Q10 ELEV
 — BUFORD DAM PTREE_750_7Q10 ELEV
 — BUFORD DAM RULE CURVE ELEV
 - - - - - BUFORD DAM ZONE3 ELEV

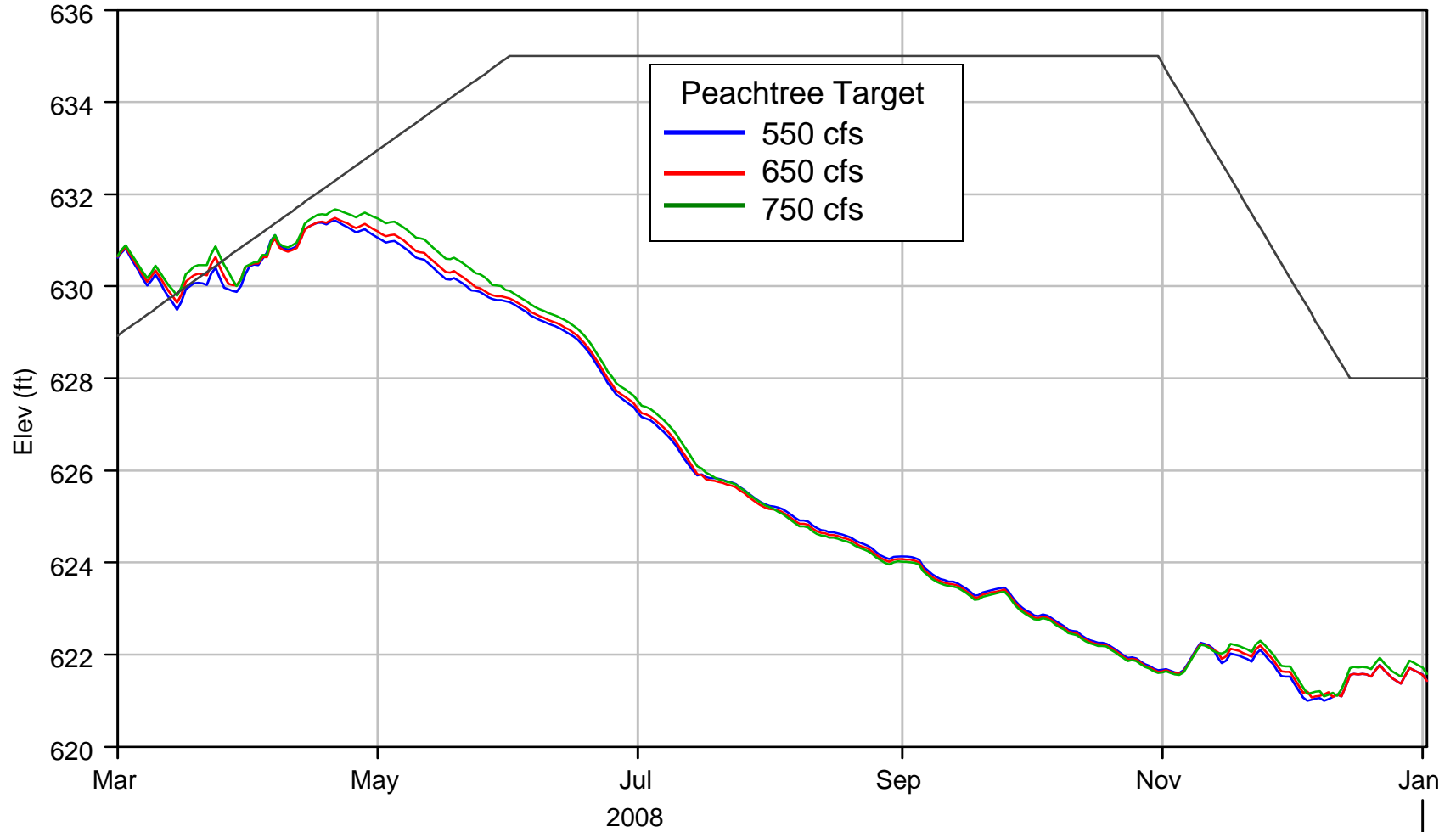
— BUFORD DAM PTREE_650_7Q10 ELEV
 — BUFORD OBSERVED ELEV
 - - - - - BUFORD DAM ZONE2 ELEV
 - - - - - BUFORD DAM ZONE4 ELEV

West Point 7Q10 Hydrology

Slightly Lower Pool Elevations



West Point 7Q10 Hydrology



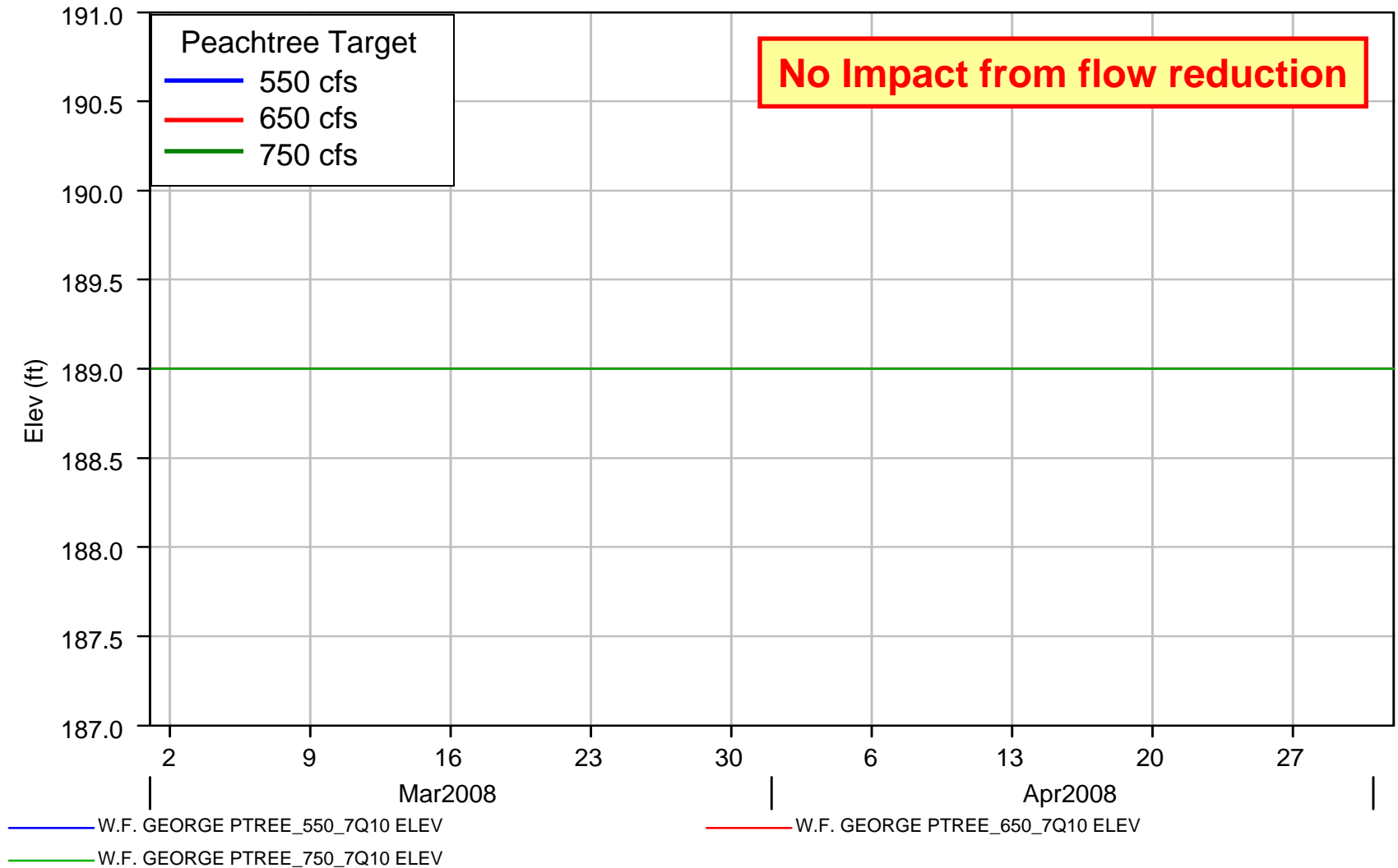
WEST POINT PTREE_550_7Q10 ELEV

WEST POINT PTREE_750_7Q10 ELEV

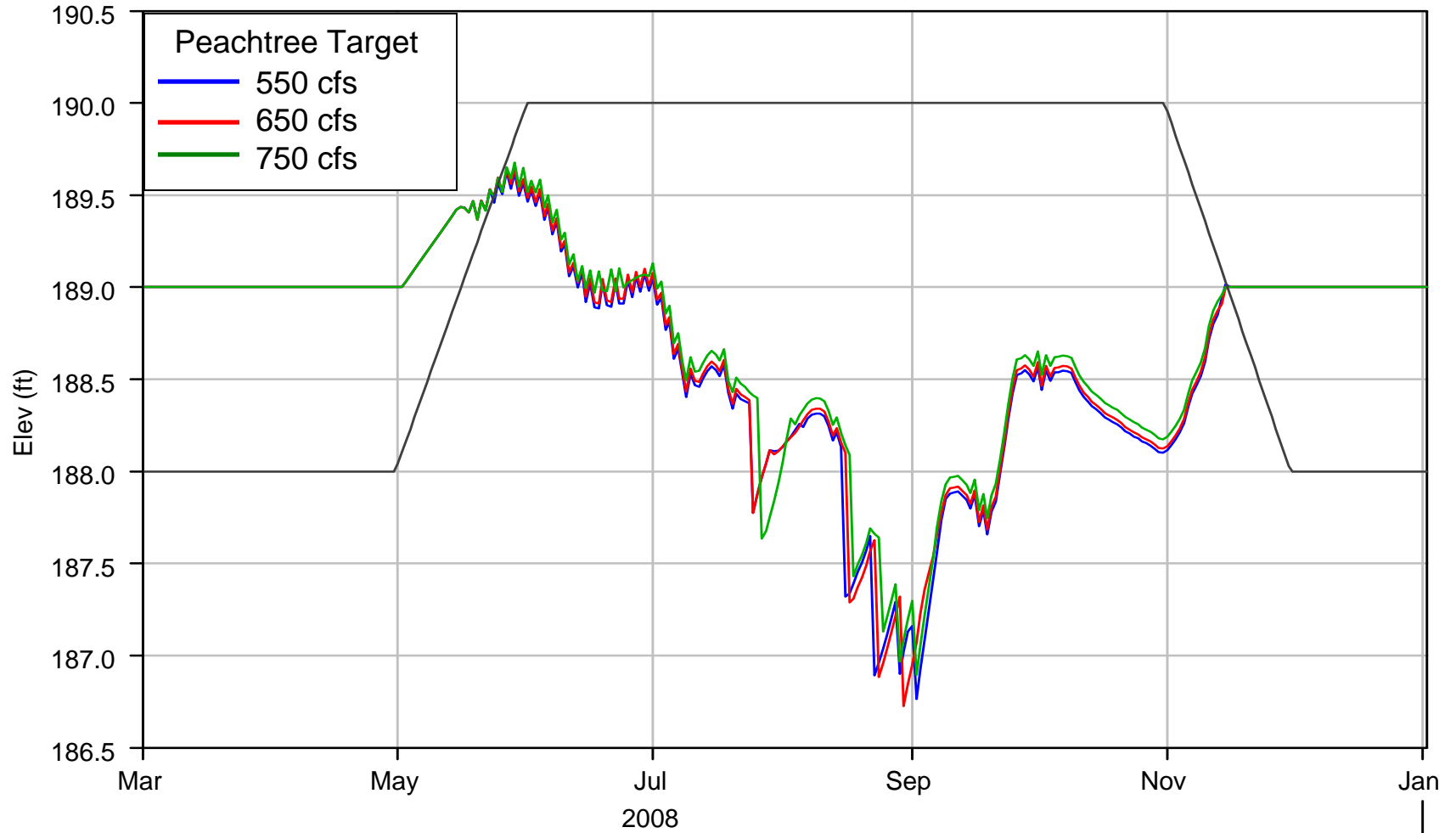
WEST POINT PTREE_650_7Q10 ELEV

WEST POINT RULE CURVE ELEV

WF George 7Q10 Hydrology



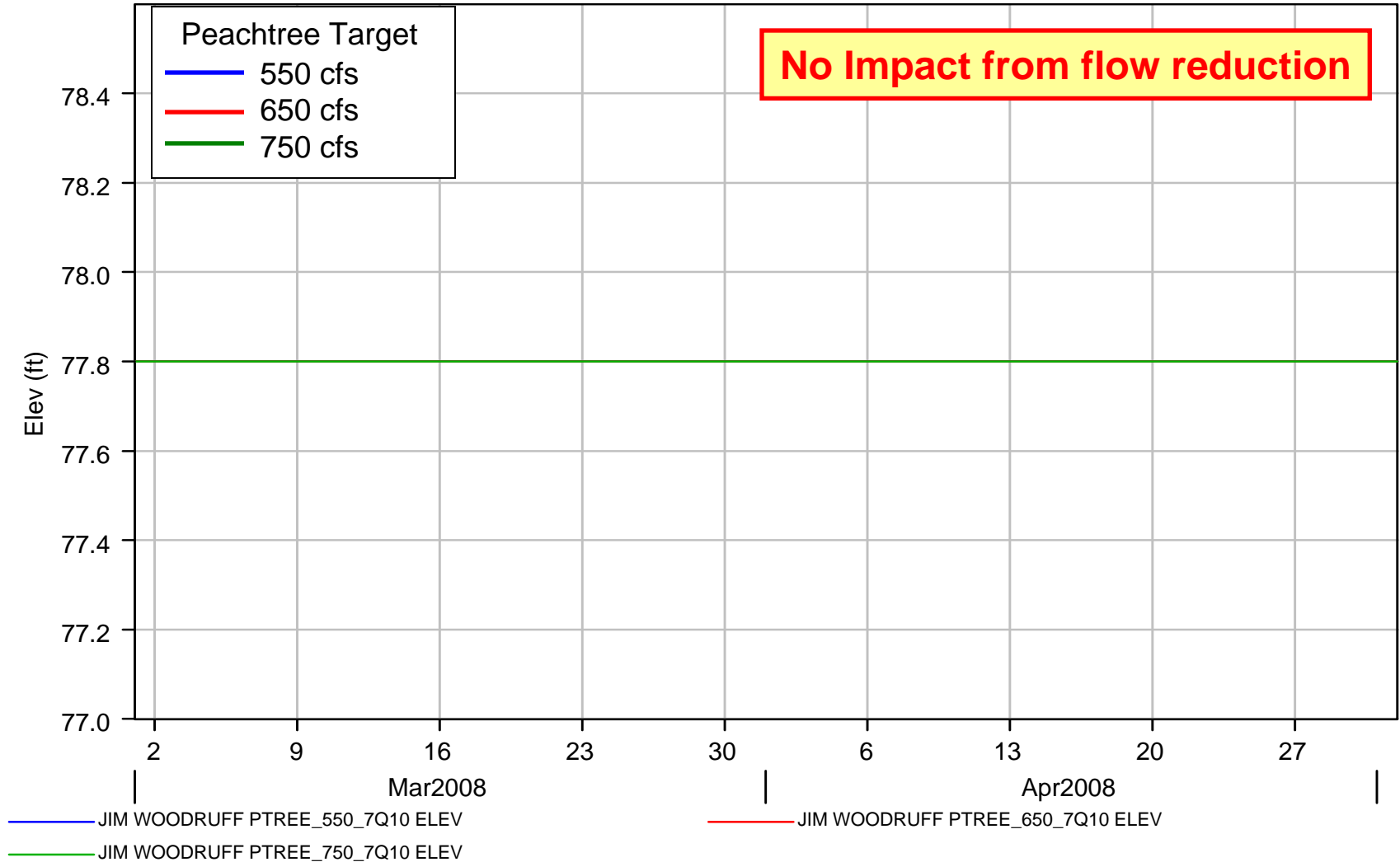
WF George 7Q10 Hydrology



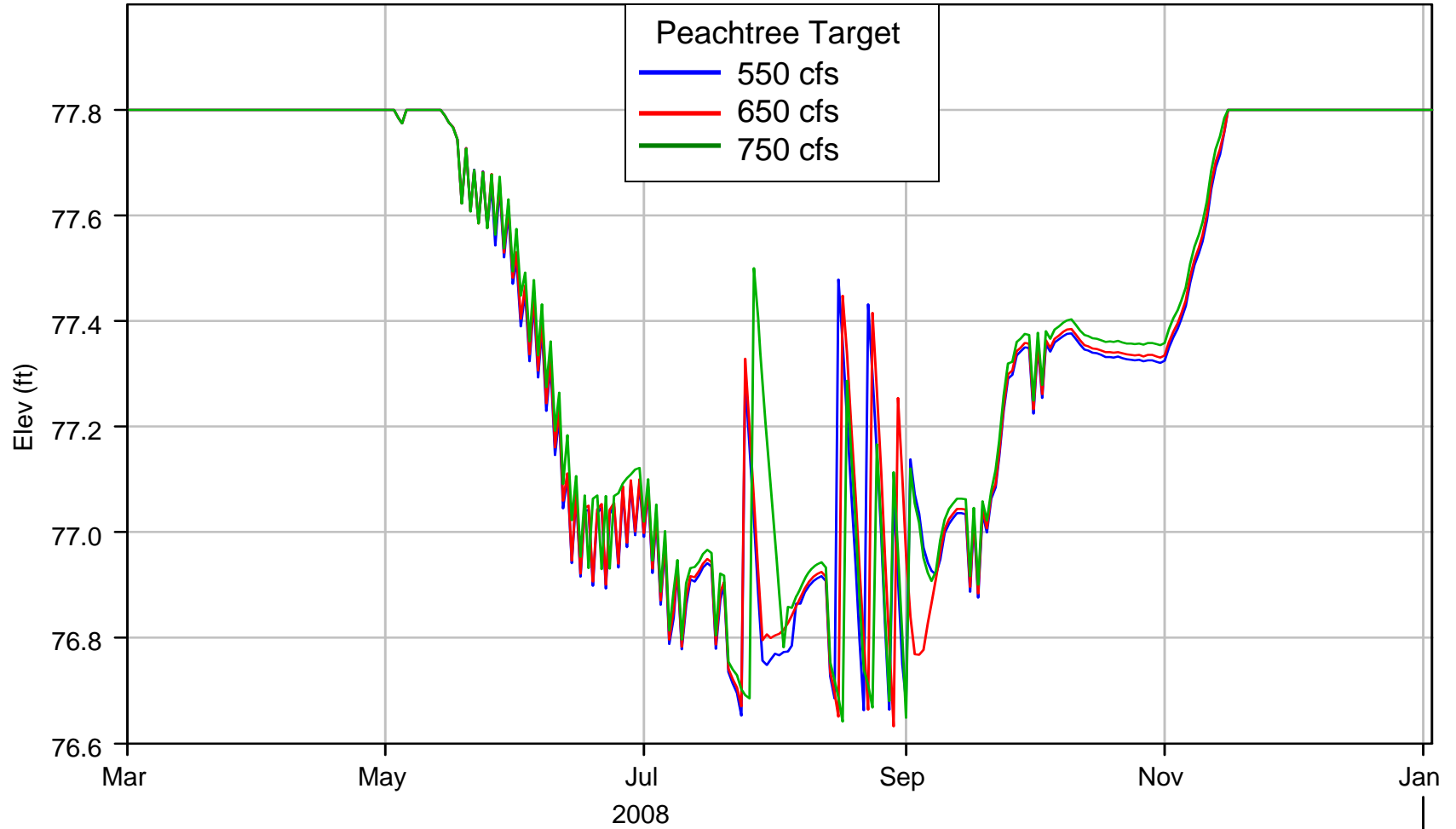
— W.F. GEORGE PTREE_550_7Q10 ELEV
— W.F. GEORGE PTREE_750_7Q10 ELEV

— W.F. GEORGE PTREE_650_7Q10 ELEV
— W.F. GEORGE RULE CURVE ELEV

Jim Woodruff 7Q10 Hydrology



Jim Woodruff 7Q10 Hydrology

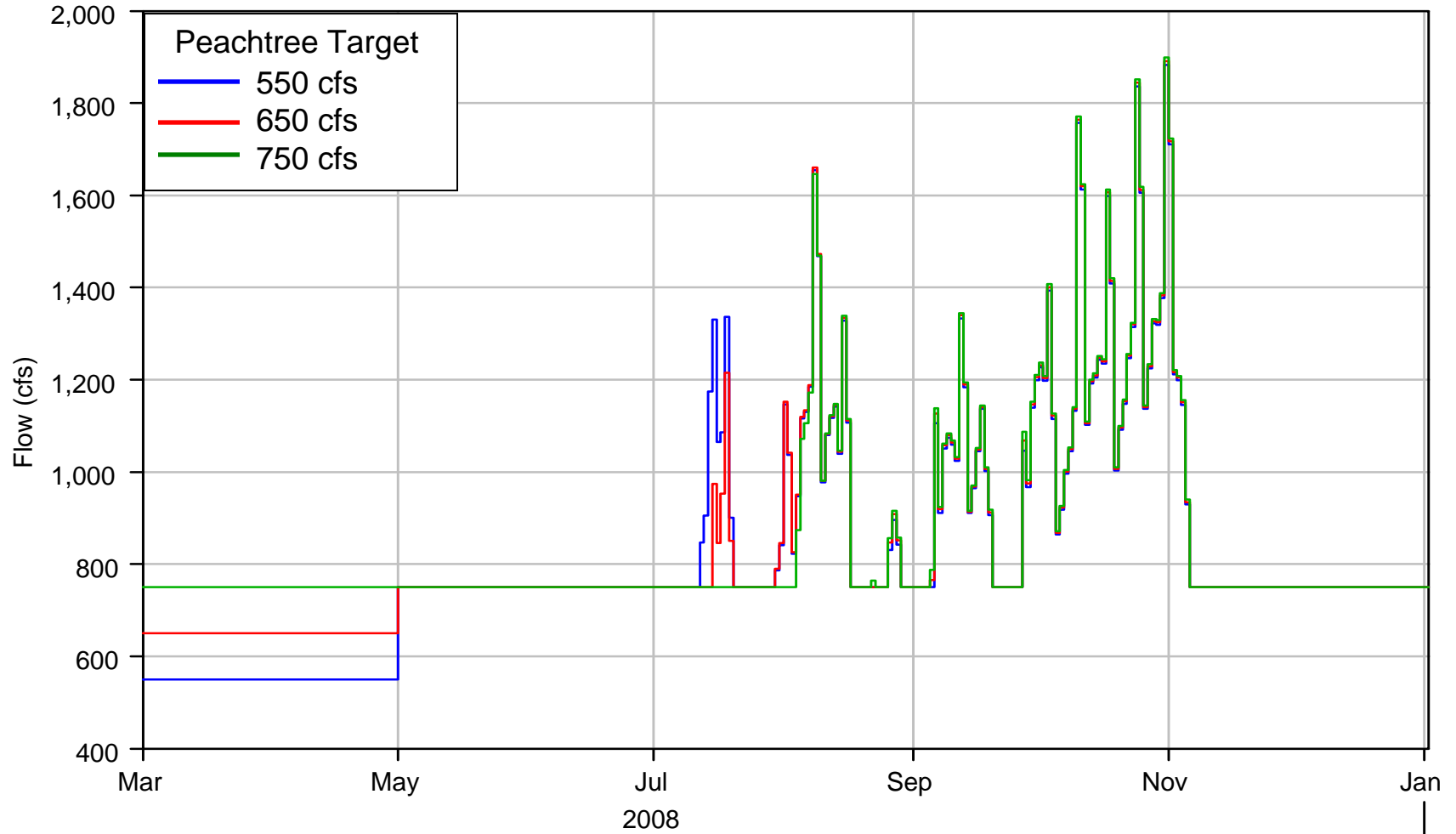


JIM WOODRUFF PTREE_550_7Q10 ELEV

JIM WOODRUFF PTREE_650_7Q10 ELEV

JIM WOODRUFF PTREE_750_7Q10 ELEV

Atlanta 7Q10 Hydrology

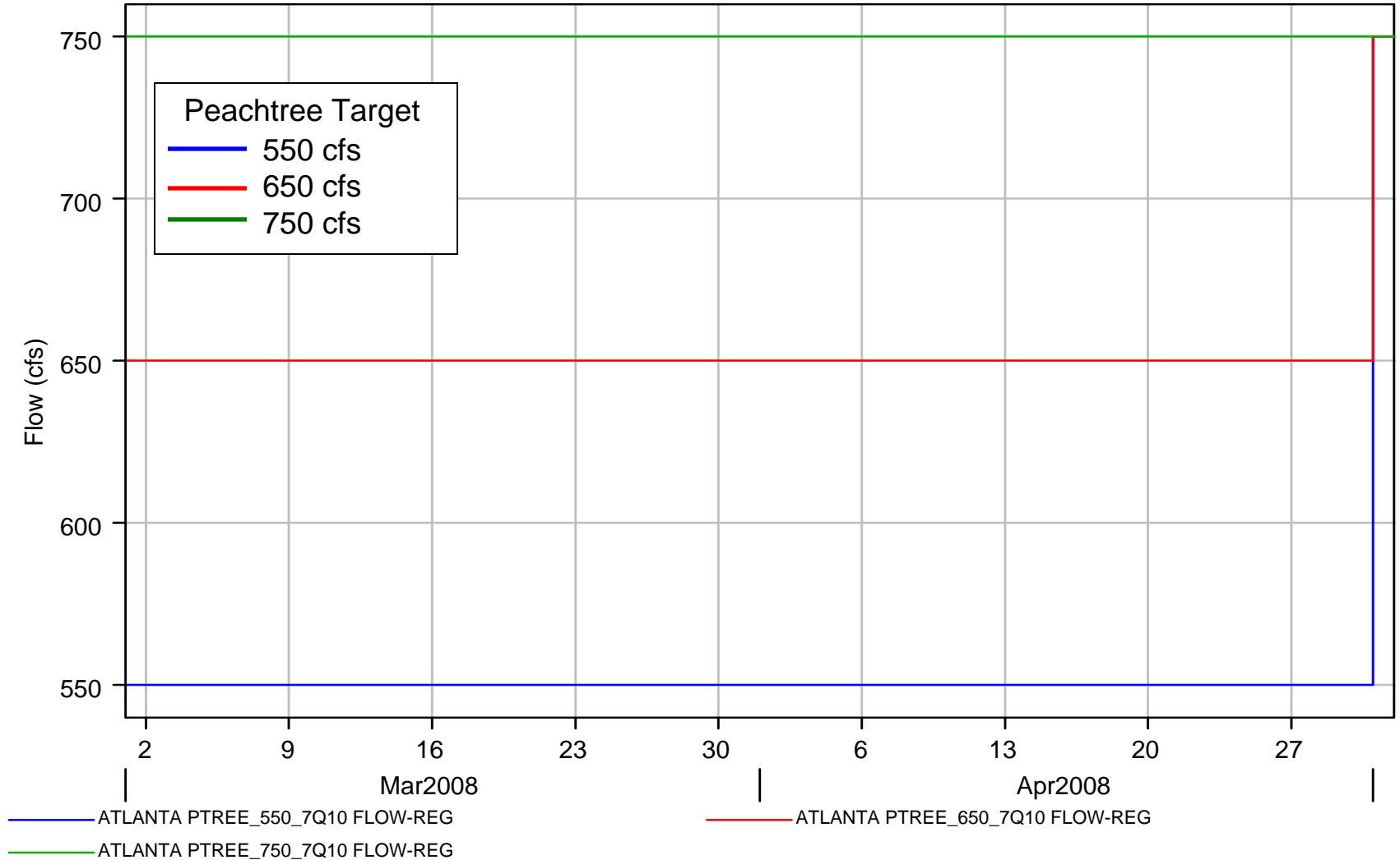


ATLANTA PTREE_550_7Q10 FLOW-REG

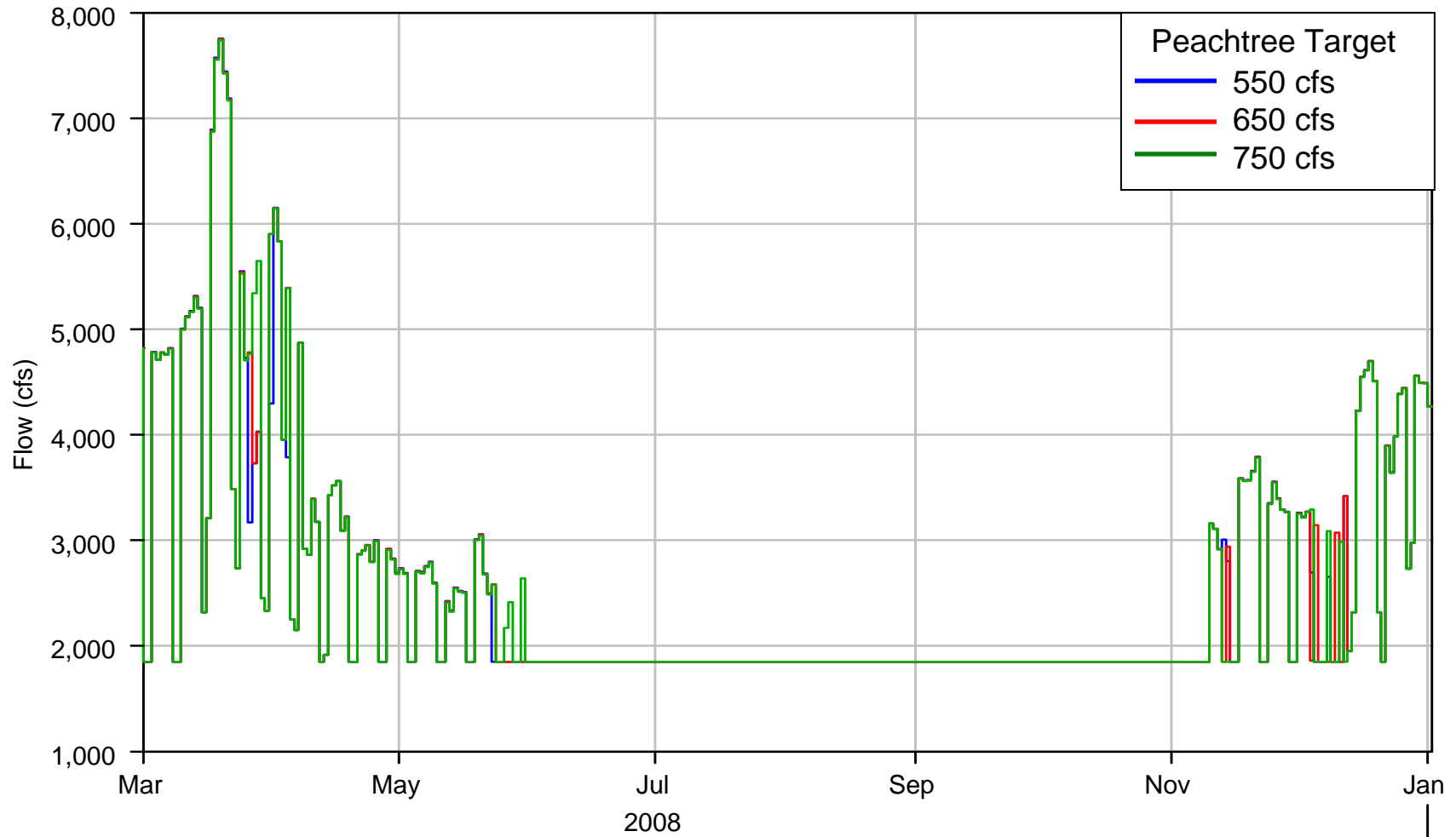
ATLANTA PTREE_650_7Q10 FLOW-REG

ATLANTA PTREE_750_7Q10 FLOW-REG

Atlanta 7Q10 Hydrology



Columbus 7Q10 Hydrology

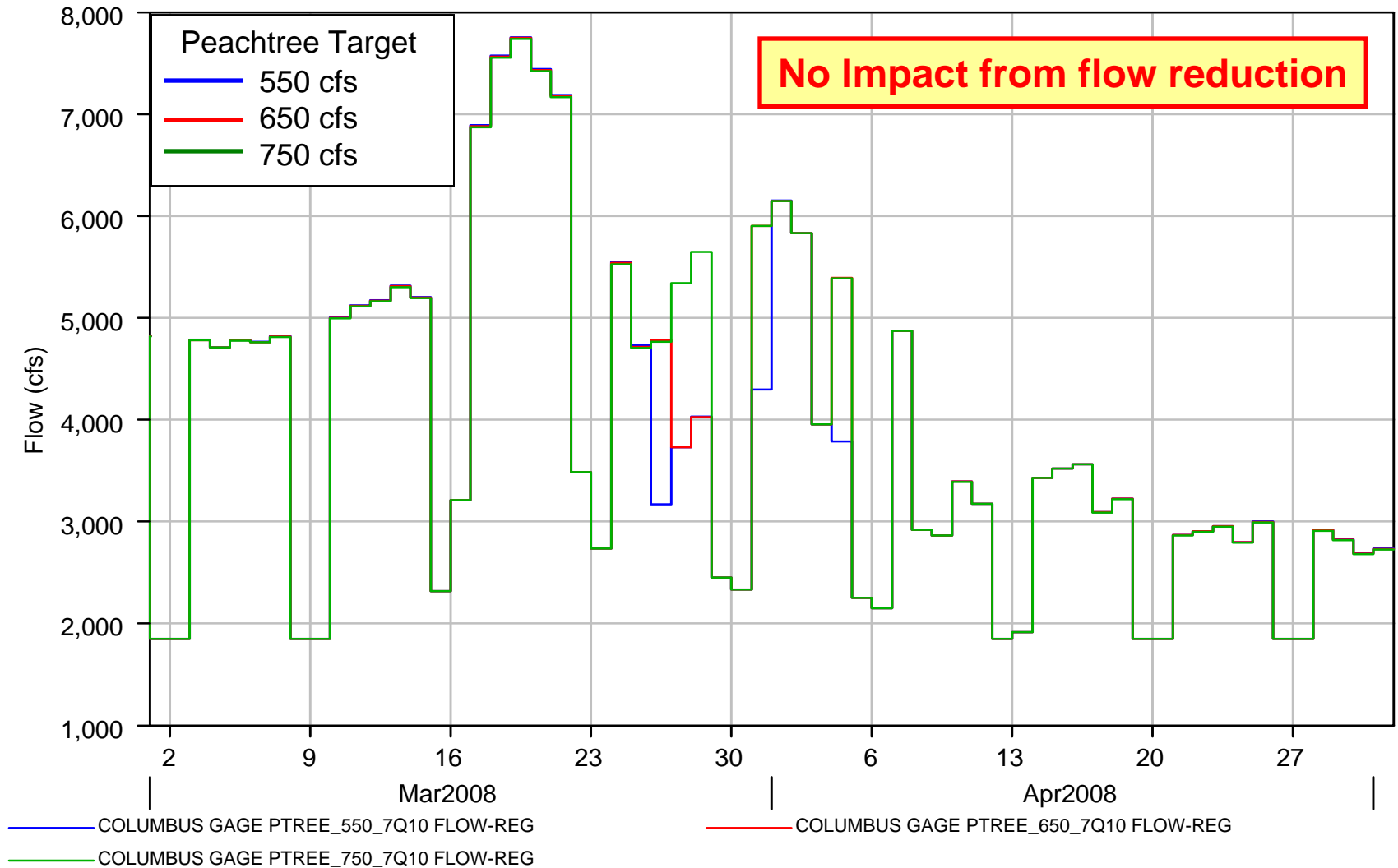


COLUMBUS GAGE PTREE_550_7Q10 FLOW-REG

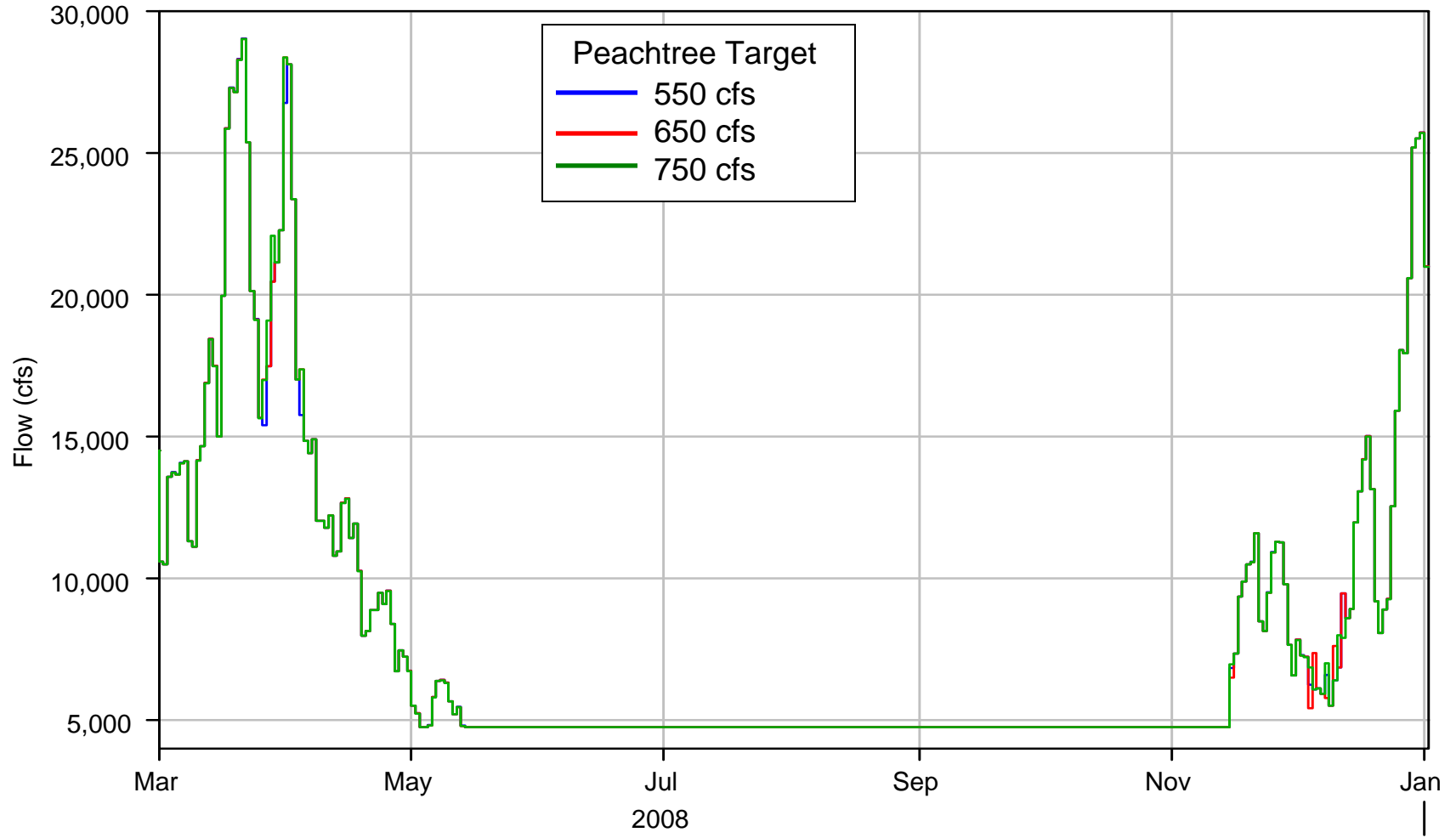
COLUMBUS GAGE PTREE_650_7Q10 FLOW-REG

COLUMBUS GAGE PTREE_750_7Q10 FLOW-REG

Columbus 7Q10 Hydrology

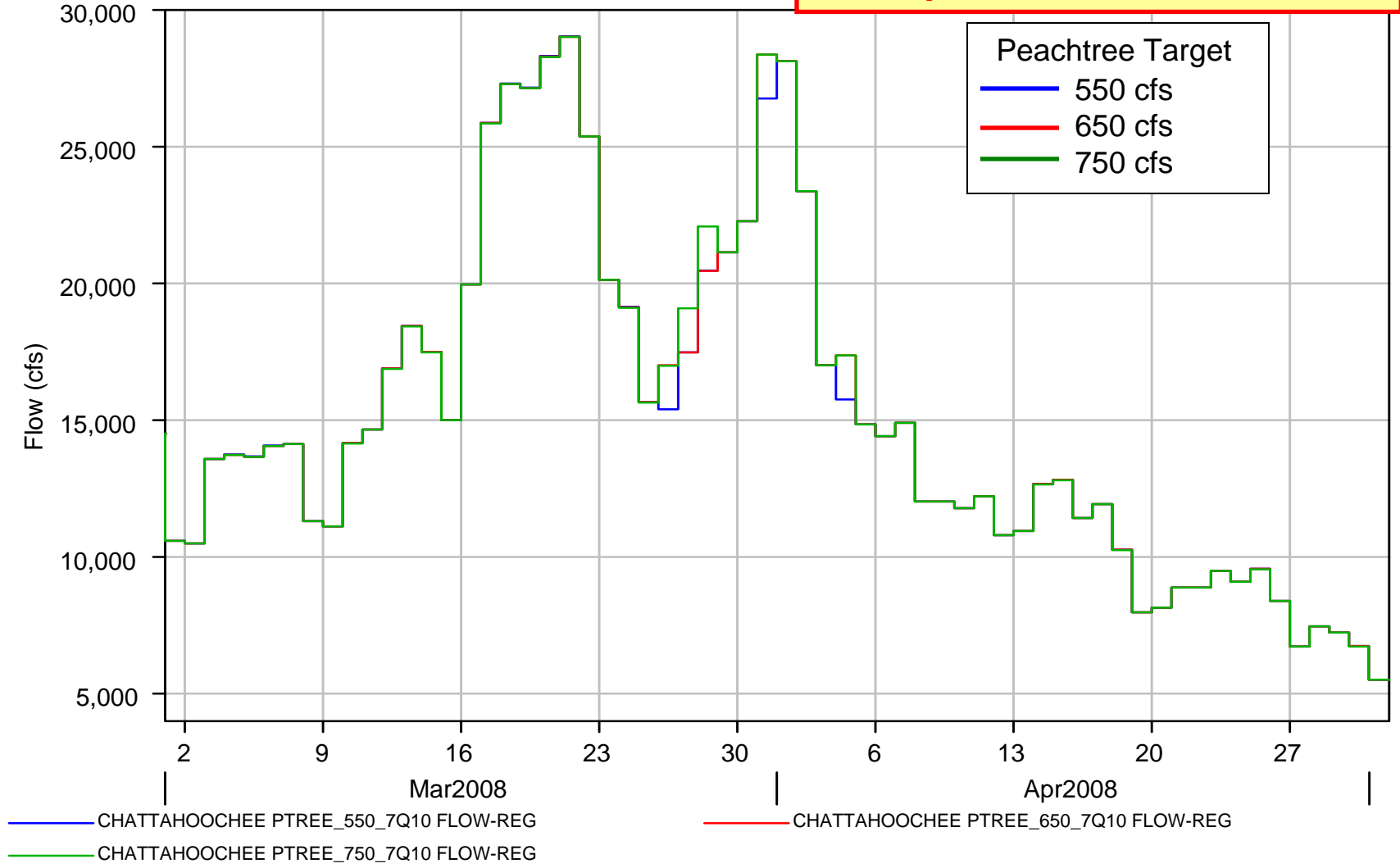


Chattahoochee 7Q10 Hydrology

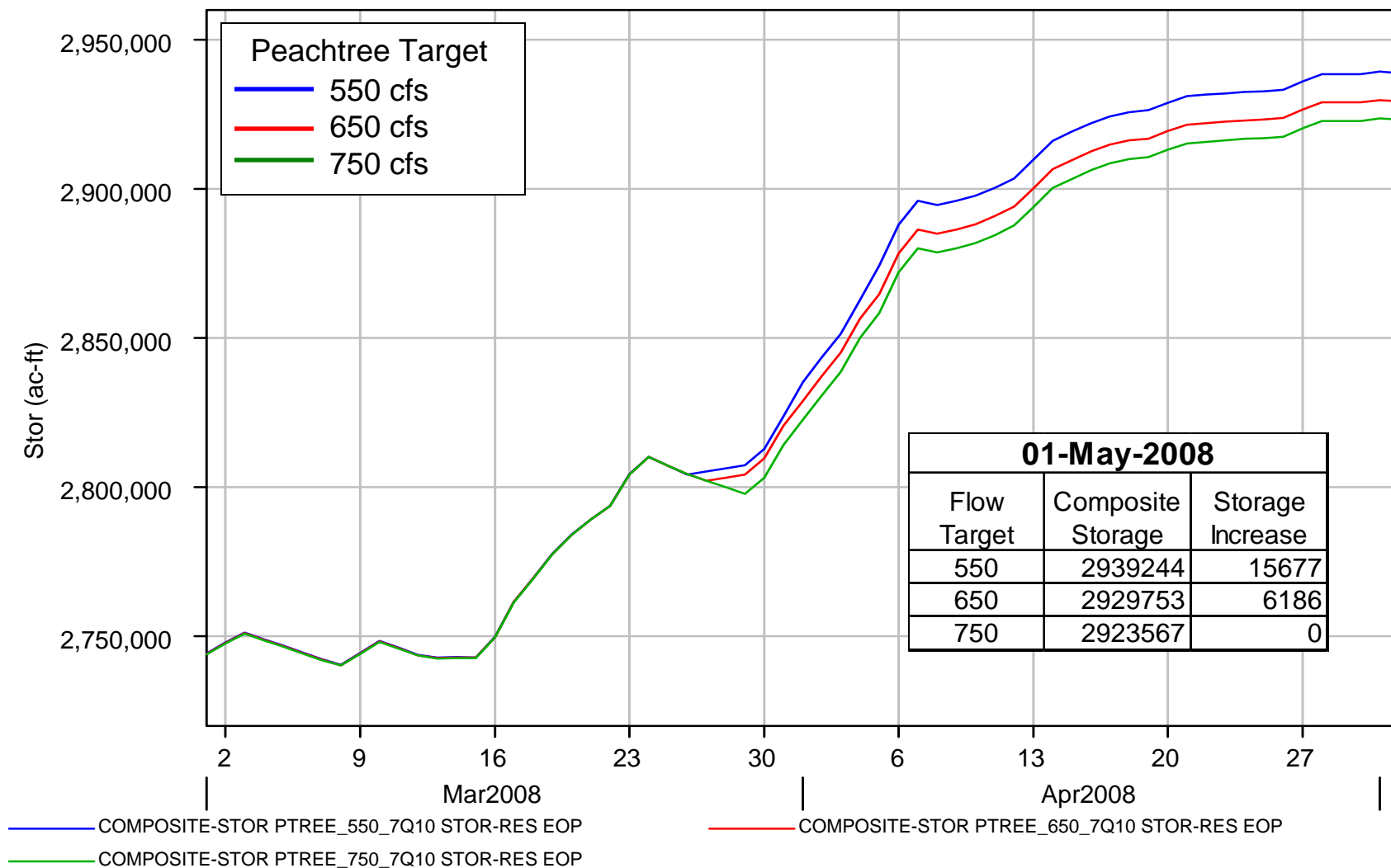


Chattahoochee 7Q10 Hydrology

No Impact from flow reduction

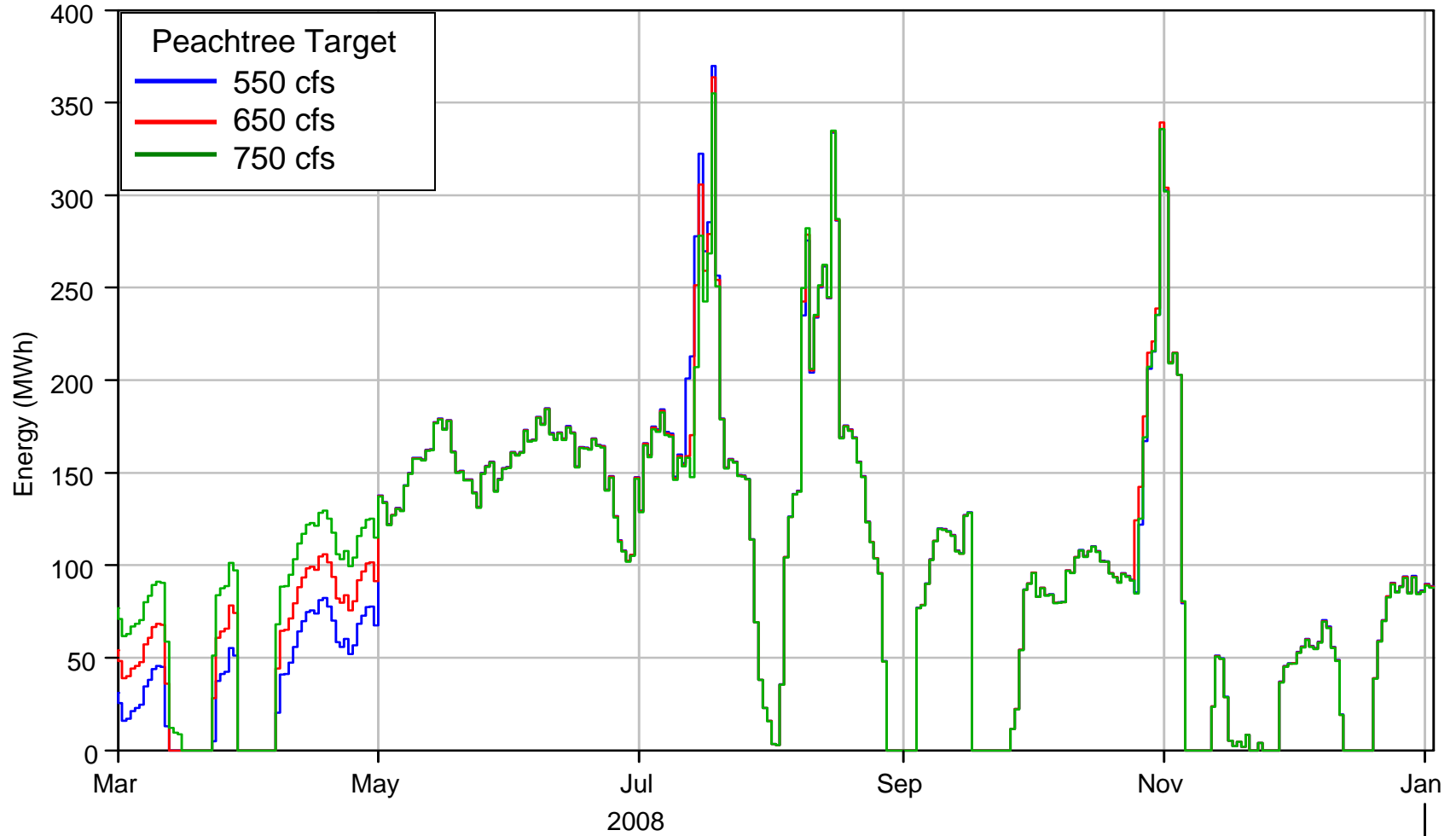


Composite Storage 7Q10 Hydrology



Hydropower

Buford Hydropower 2000 Hydrology

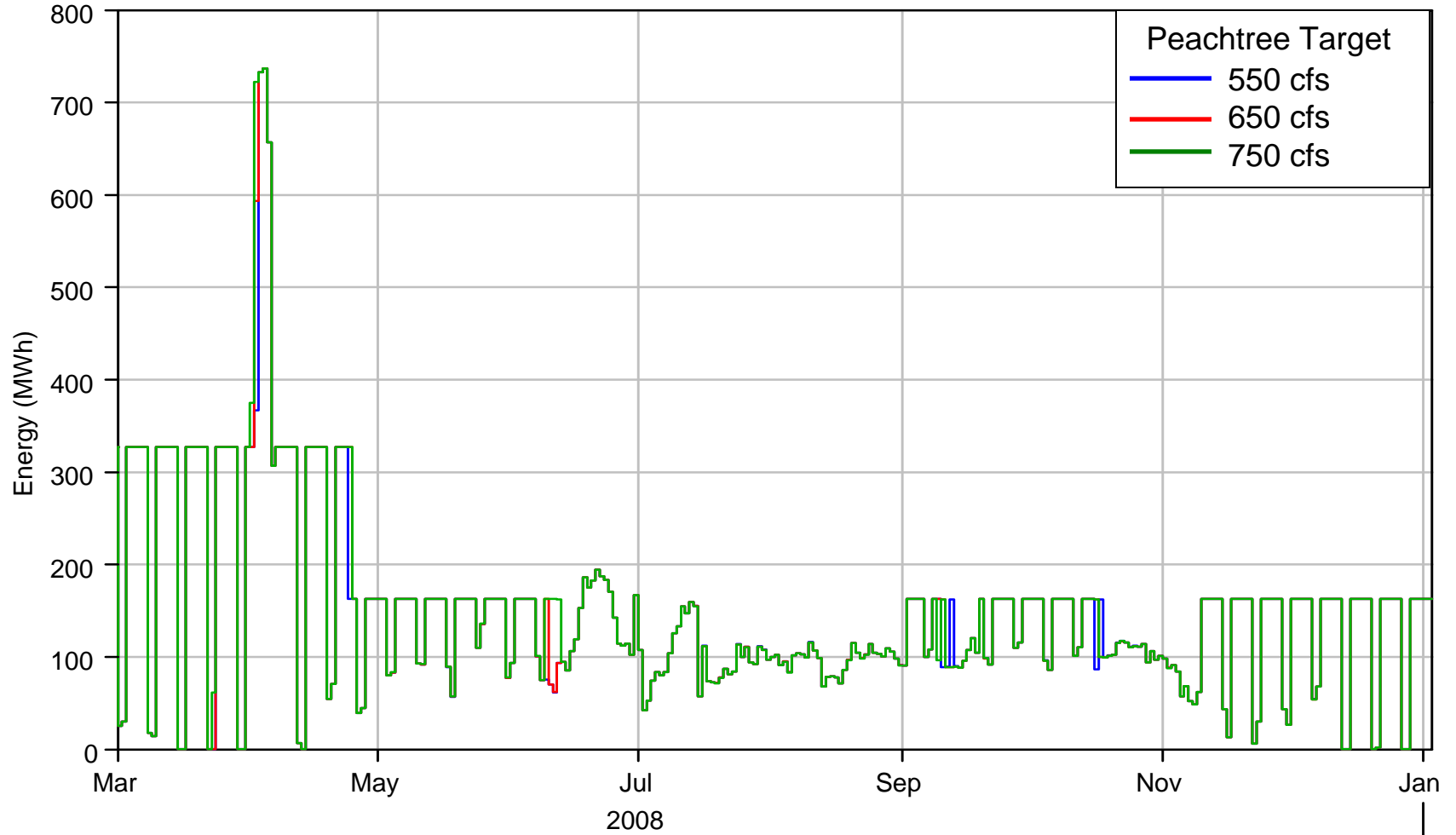


— BUFORD DAM PTREE_550 ENERGY-GEN

— BUFORD DAM PTREE_650 ENERGY-GEN

— BUFORD DAM PTREE_750 ENERGY-GEN

West Point Hydropower 2000 Hydrology

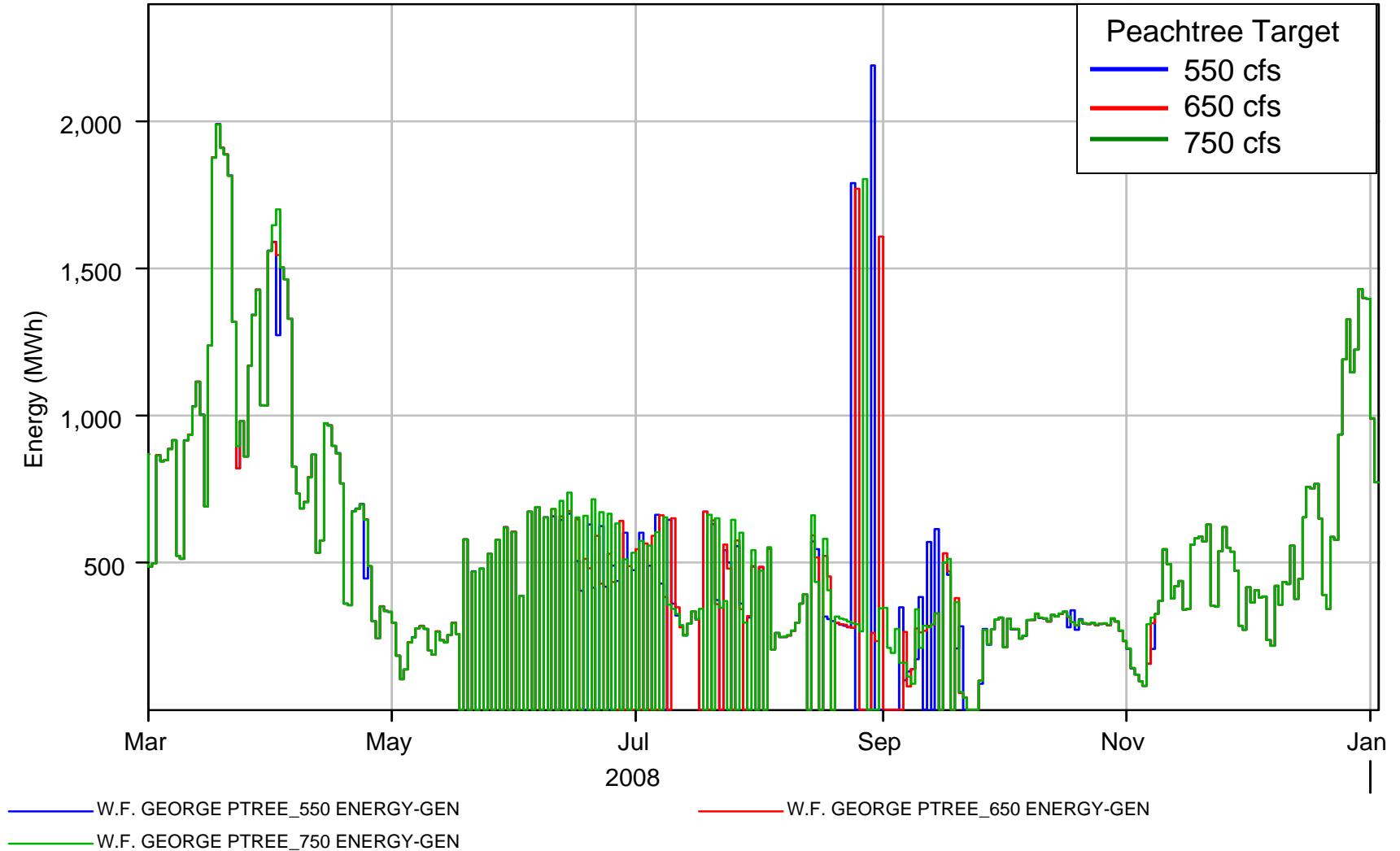


WEST POINT PTREE_550 ENERGY-GEN

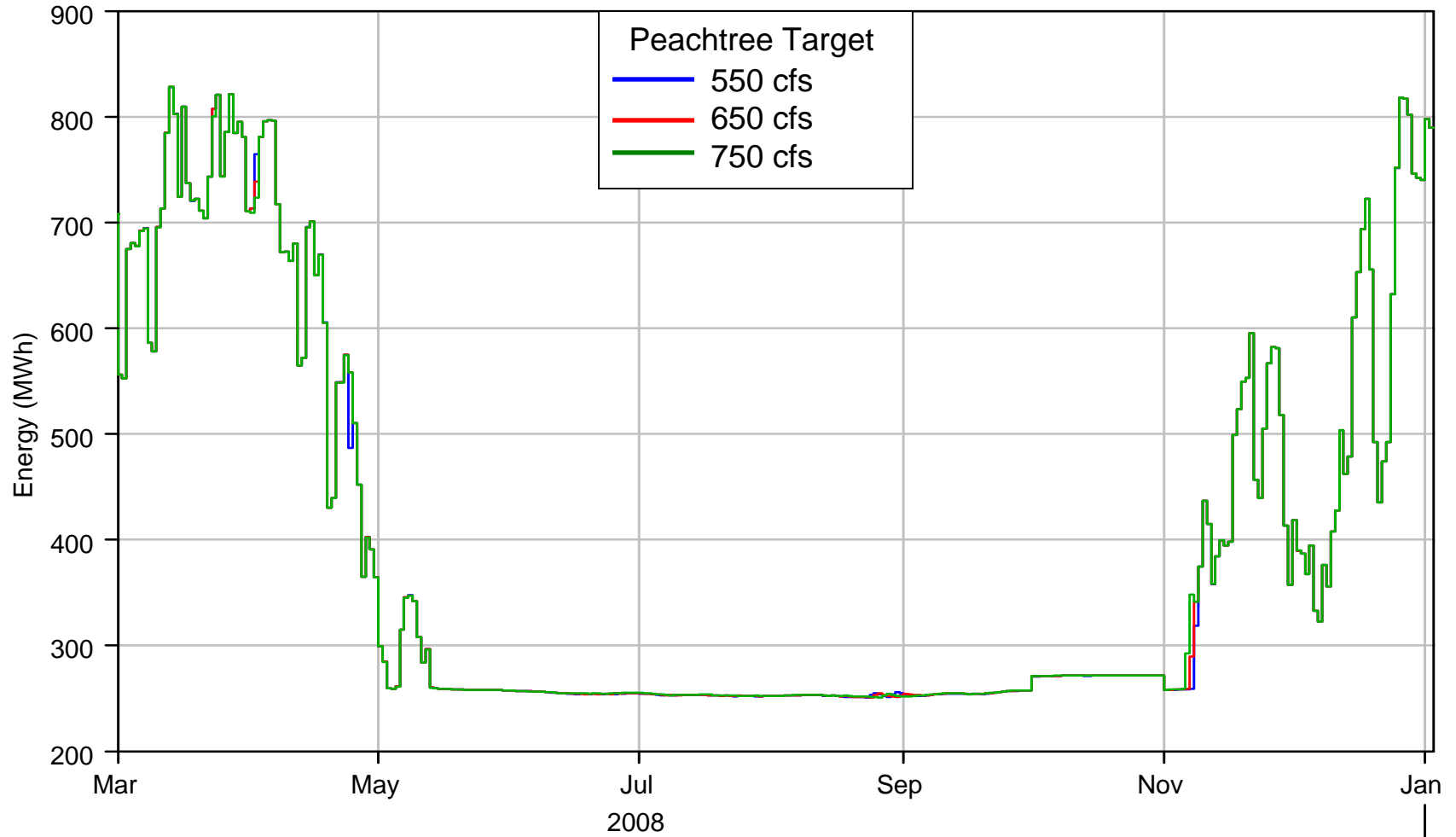
WEST POINT PTREE_650 ENERGY-GEN

WEST POINT PTREE_750 ENERGY-GEN

WF George Hydropower 2000 Hydrology



Jim Woodruff Hydropower 2000 Hydrology

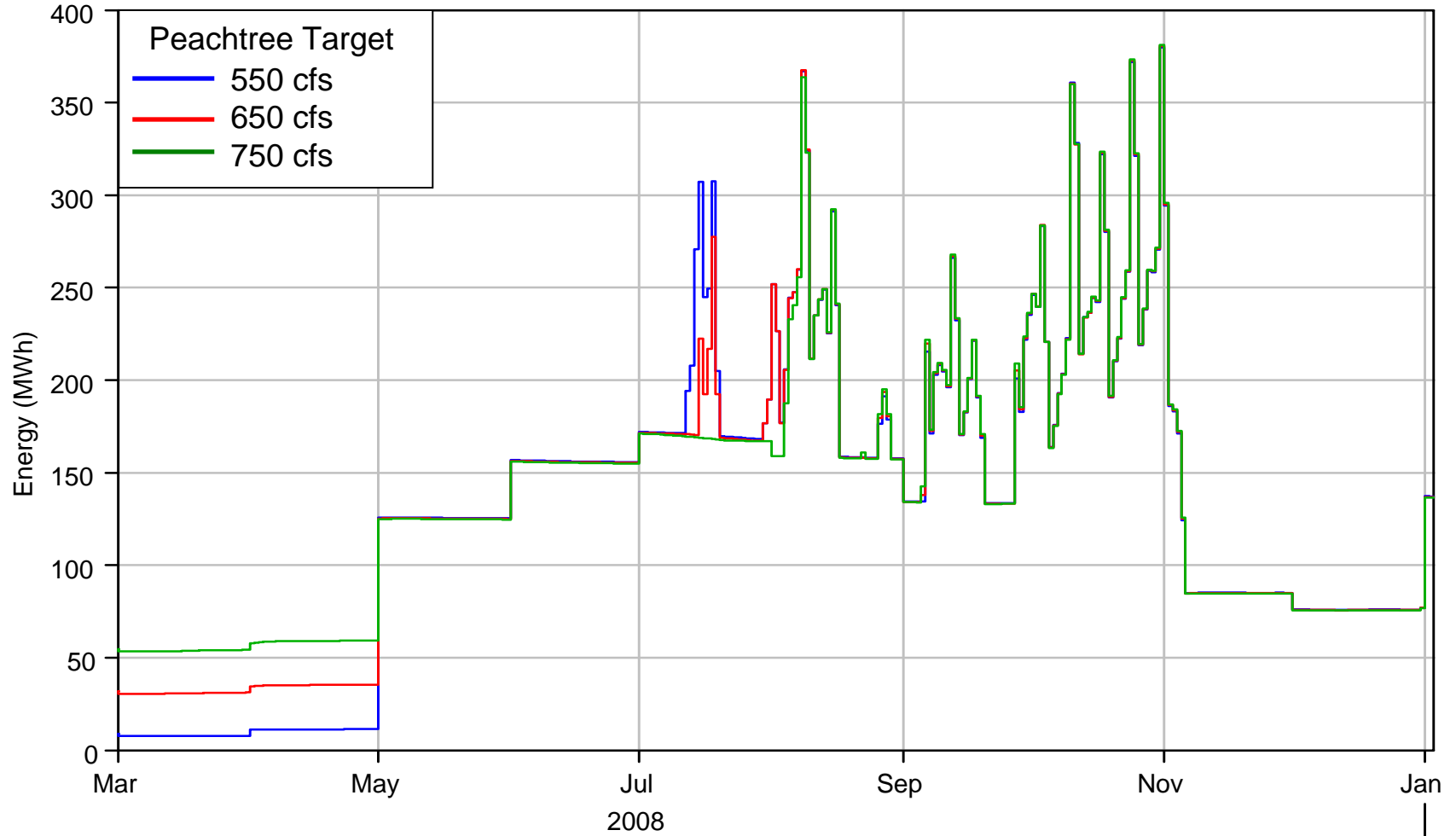


JIM WOODRUFF PTREE_550 ENERGY-GEN

JIM WOODRUFF PTREE_650 ENERGY-GEN

JIM WOODRUFF PTREE_750 ENERGY-GEN

Buford Hydropower 7Q10 Hydrology

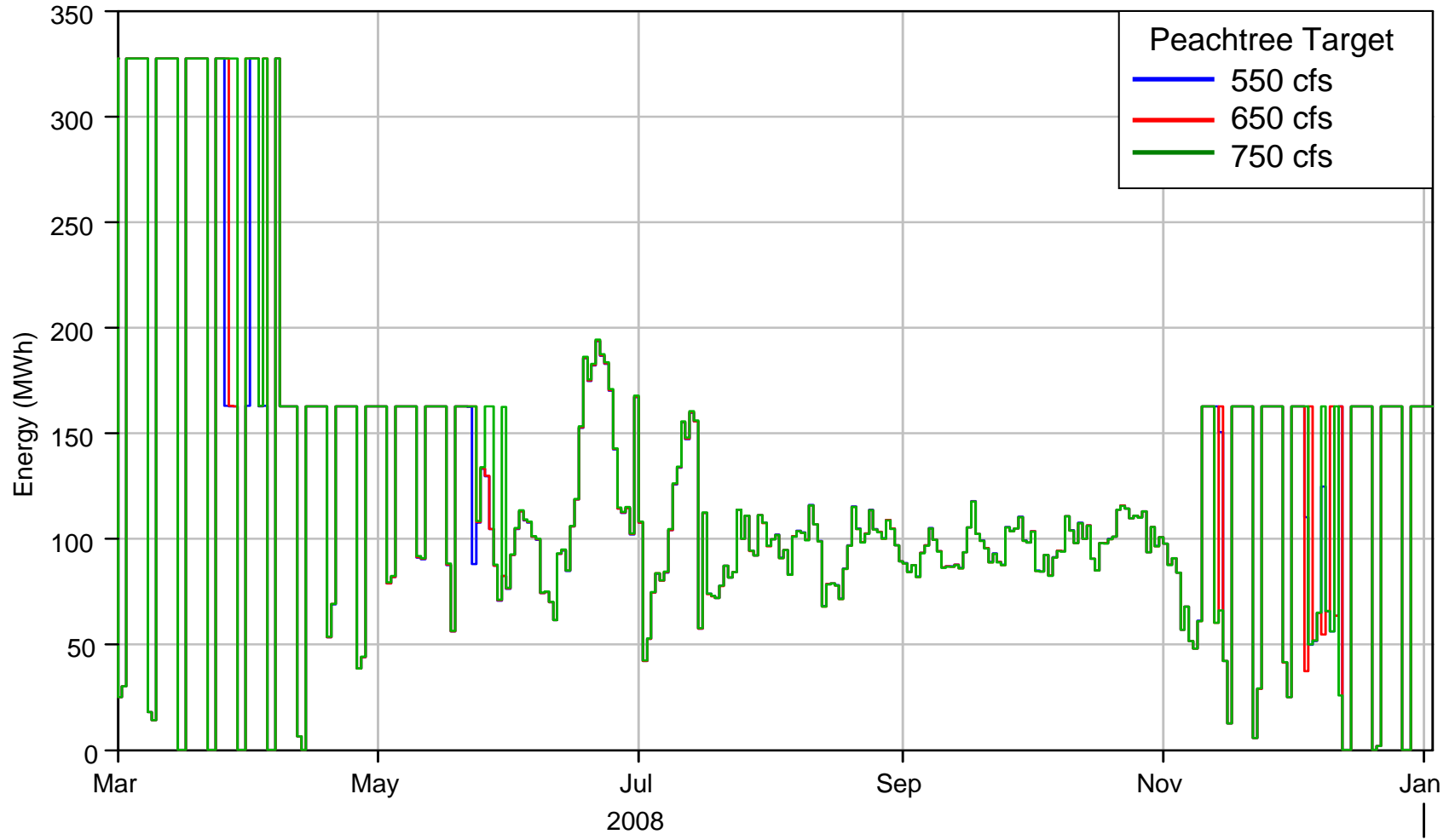


— BUFORD DAM PTREE_550_7Q10 ENERGY-GEN

— BUFORD DAM PTREE_650_7Q10 ENERGY-GEN

— BUFORD DAM PTREE_750_7Q10 ENERGY-GEN

West Point Hydropower 7Q10 Hydrology

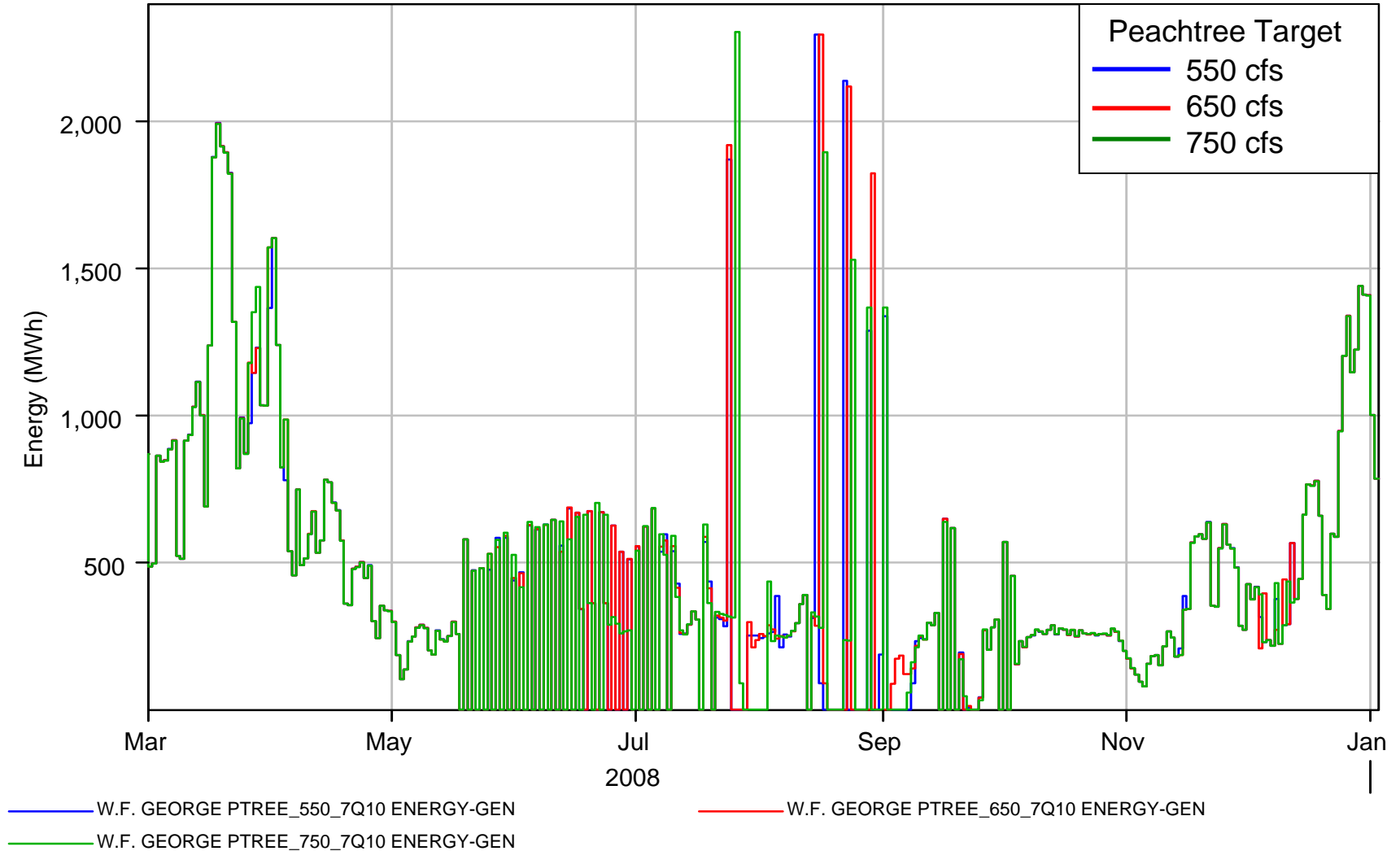


WEST POINT PTREE_550_7Q10 ENERGY-GEN

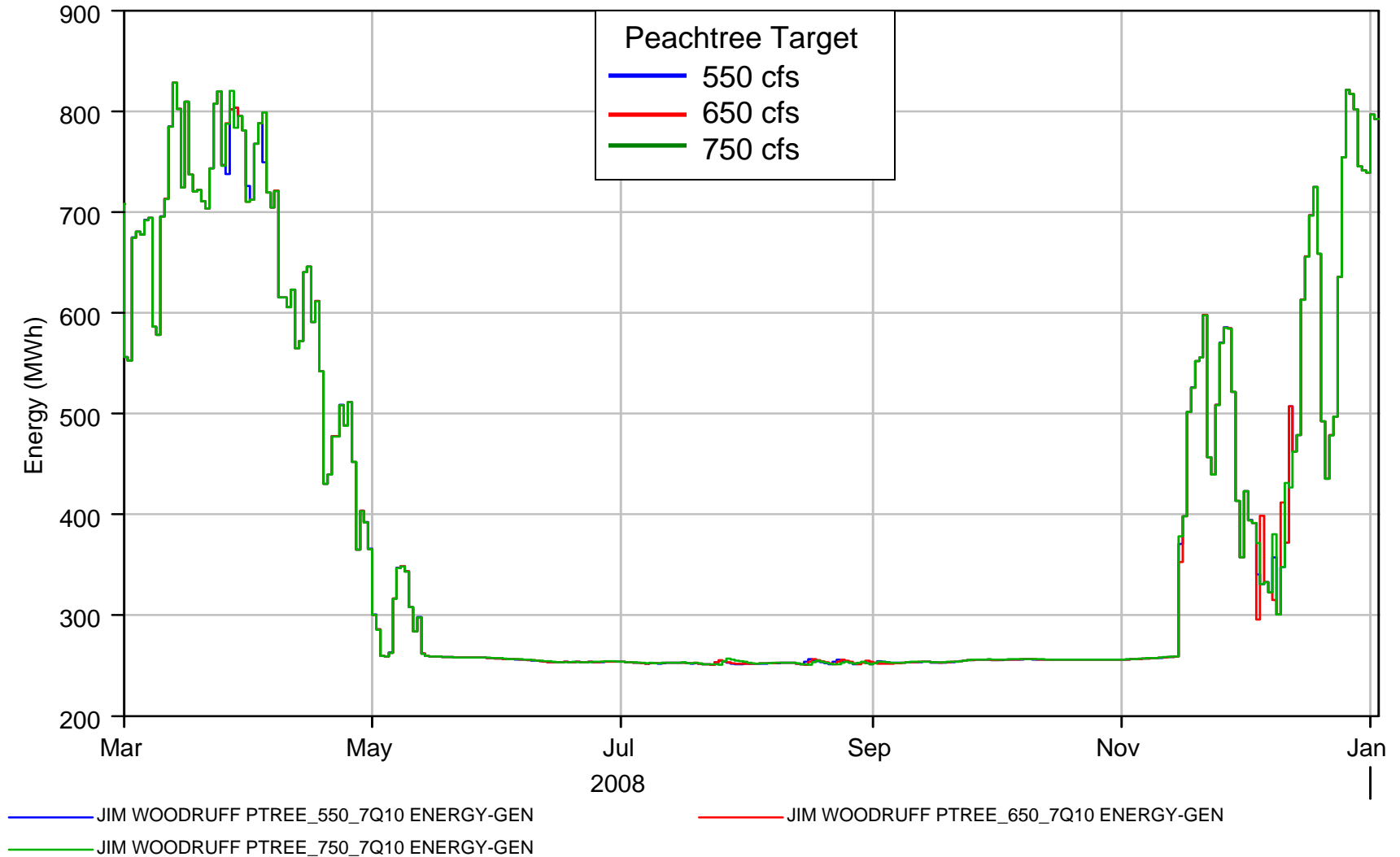
WEST POINT PTREE_650_7Q10 ENERGY-GEN

WEST POINT PTREE_750_7Q10 ENERGY-GEN

WF George Hydropower 7Q10 Hydrology



Jim Woodruff Hydropower 7Q10 Hydrology

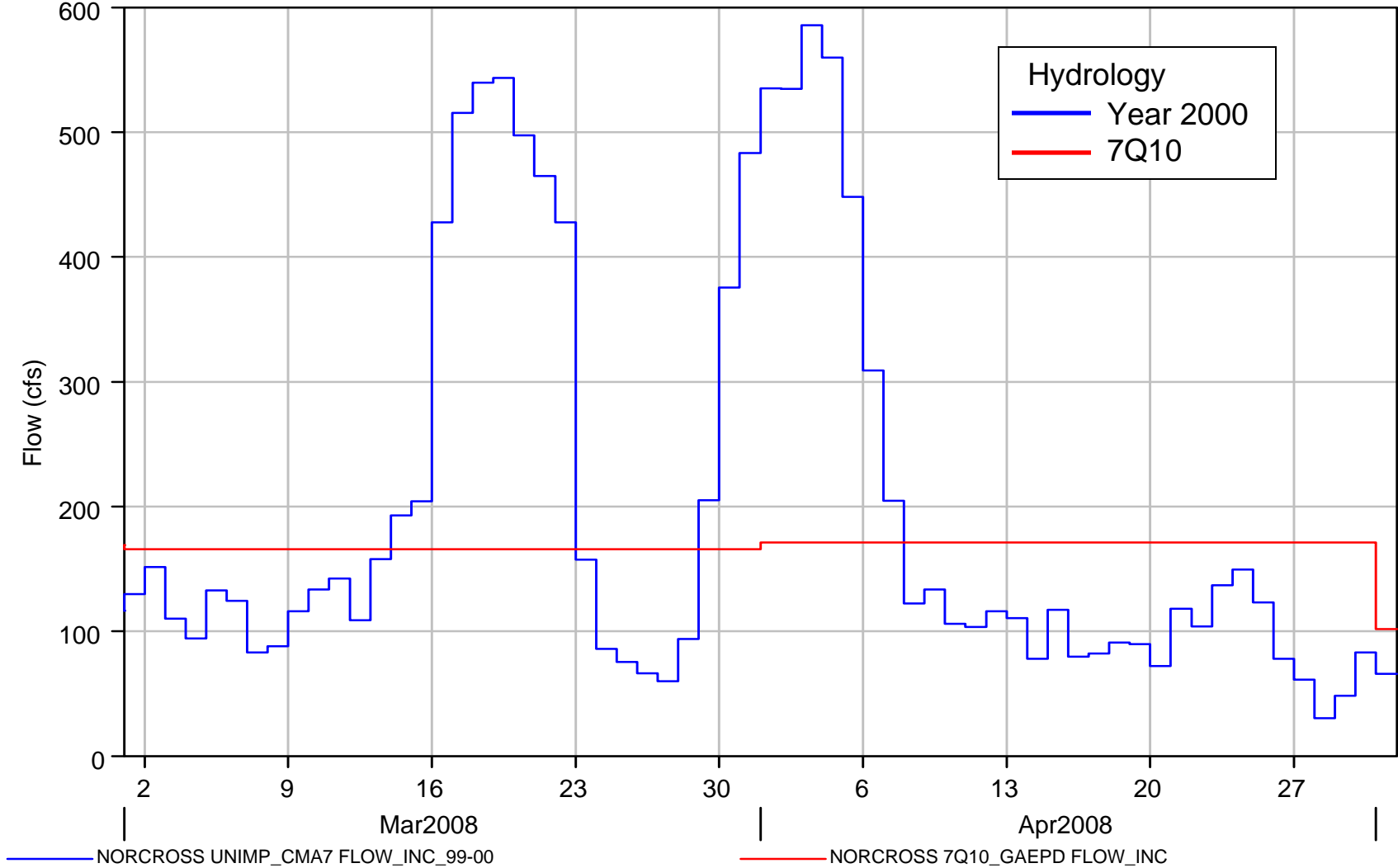


Hydrology Comparison

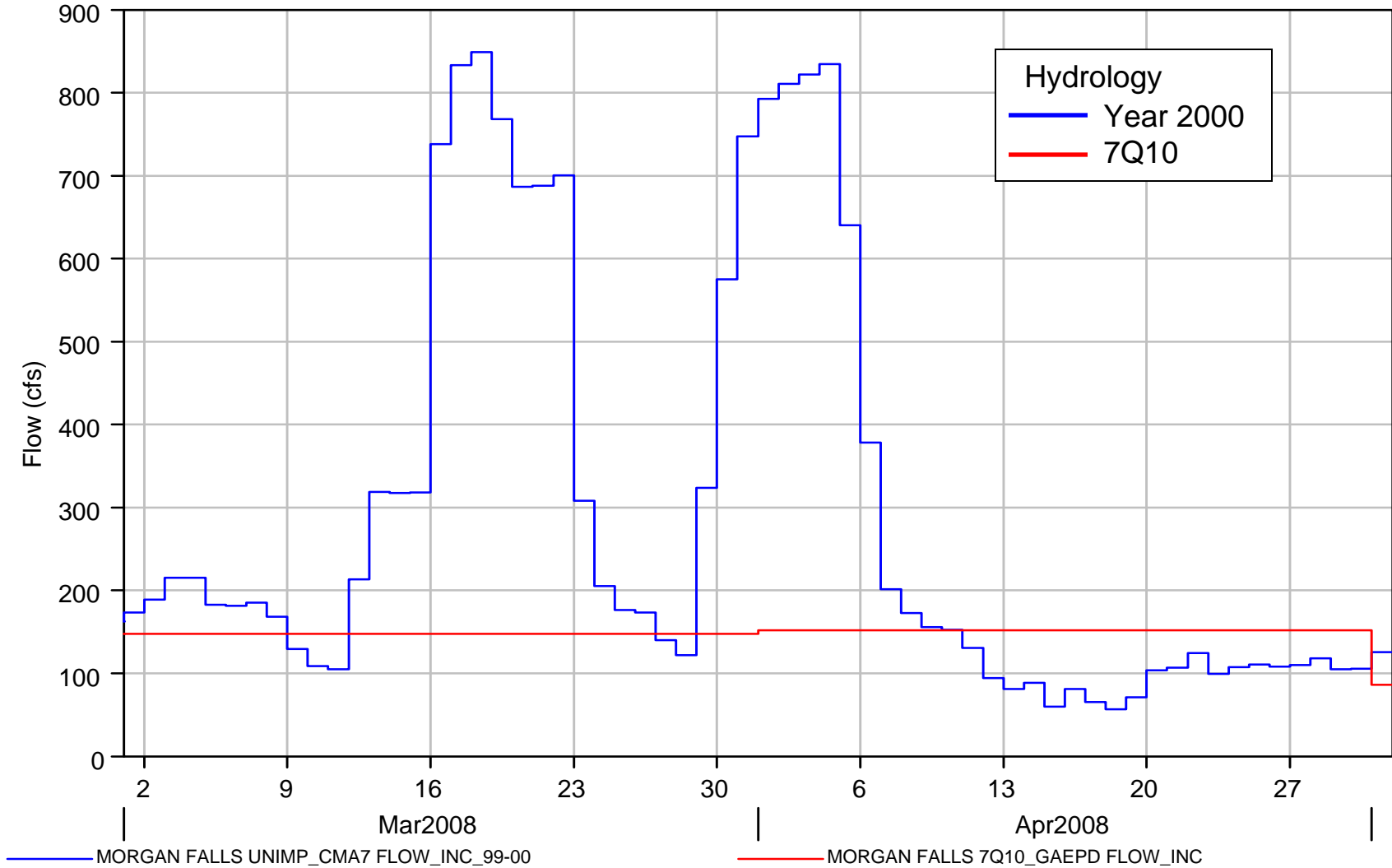
Year 2000 vs Monthly 7Q10

- Hydrology Alternatives
 - Year 2000
 - 7Q10 between Buford and Whitesburg, Year 2000 rest of basin
- Model Nodes Impacted
 - Norcross
 - Morgan Falls
 - Atlanta
 - Whitesburg

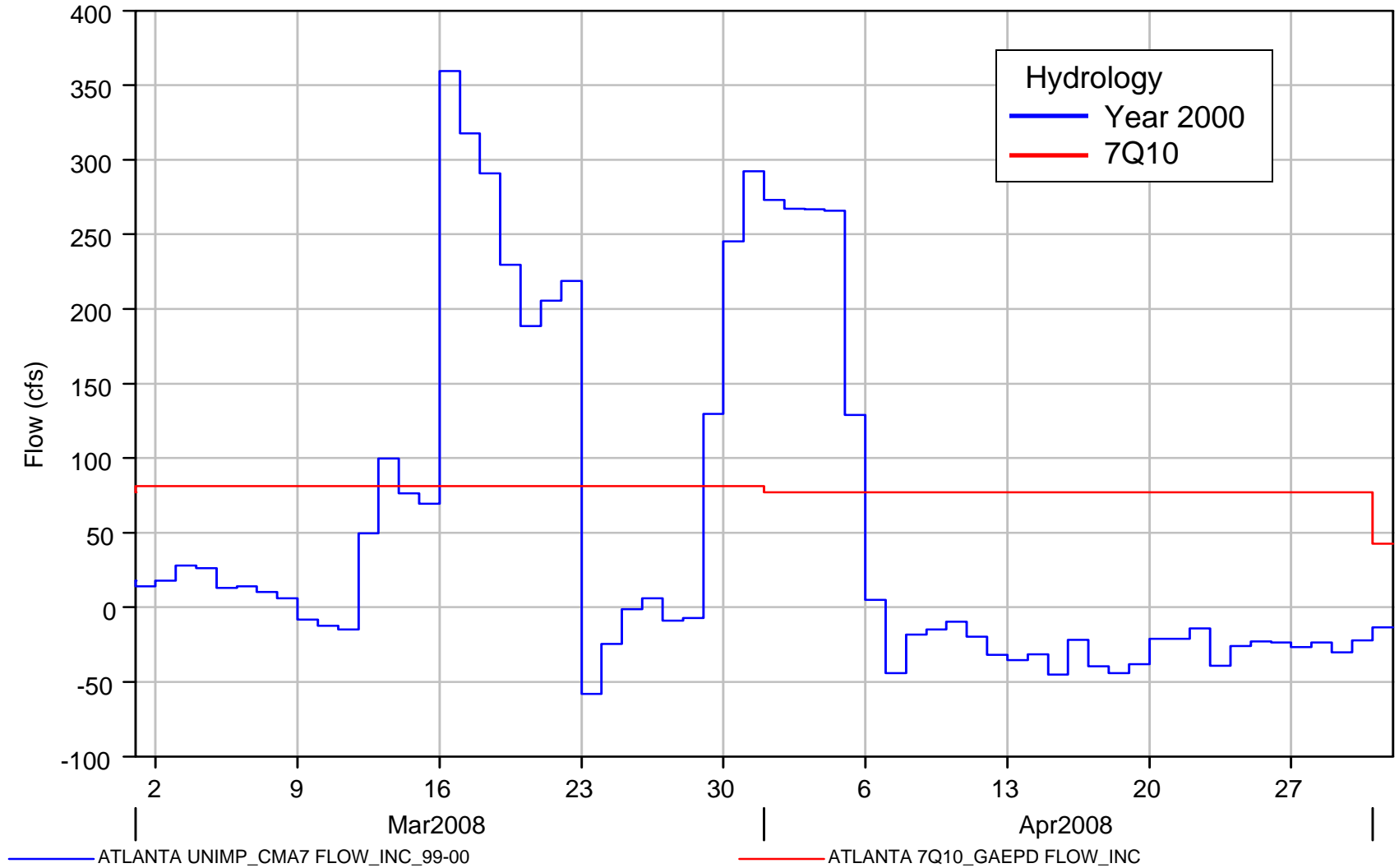
Norcross Increment Flow



Morgan Falls Increment Flow



Atlanta Increment Flow



Whitesburg Increment Flow

