

# ARC ACF Interim Operations Plan Proposal 3 – FIOPA3

5% Woodruff over-release caps

Allowable ramp-up rate = ramp-down rate

Lanier, West Point zones 2–4 raised 1 foot

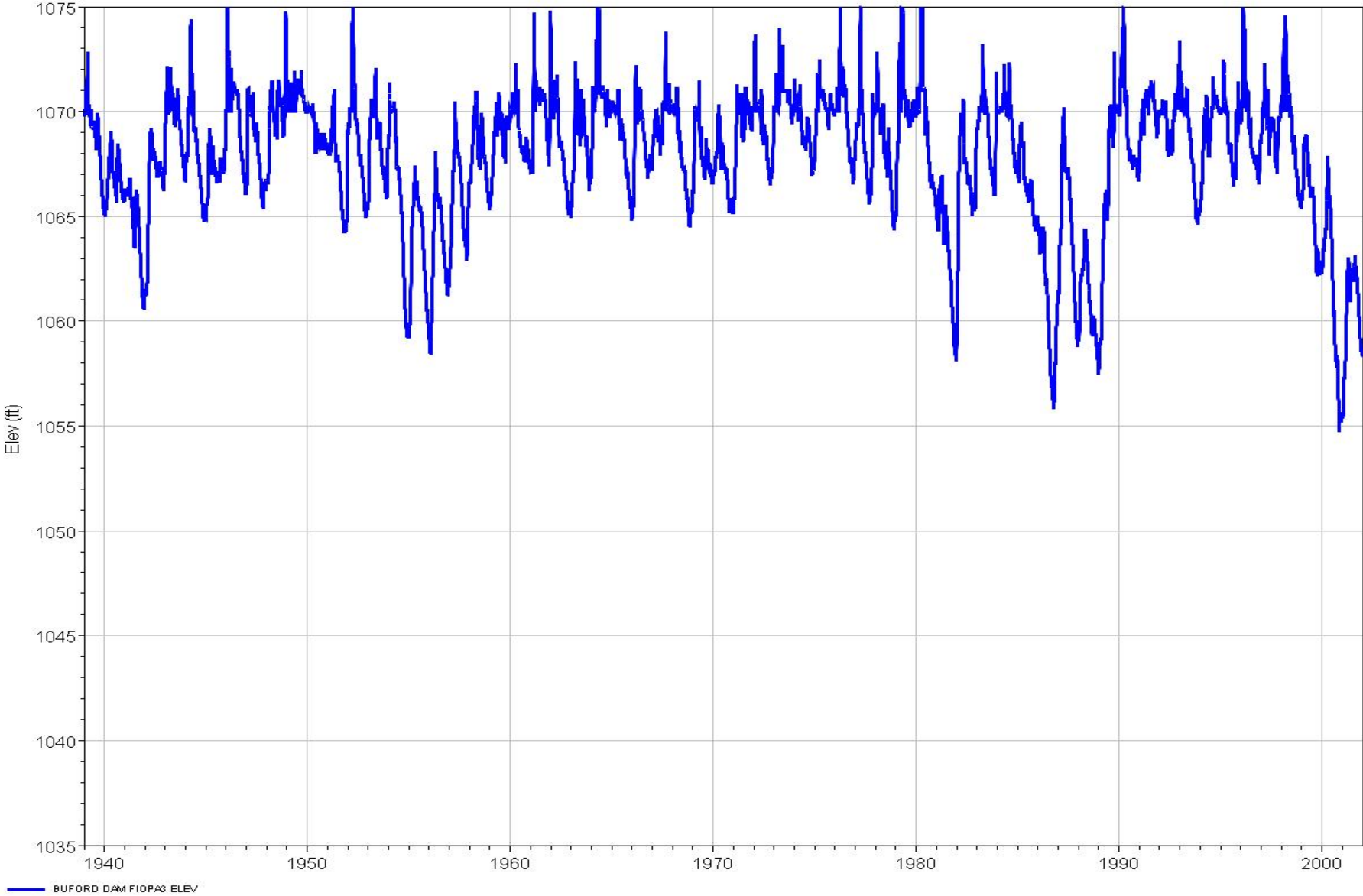
George F. McMahon, Ph.D., PE, D.WRE

December 2006

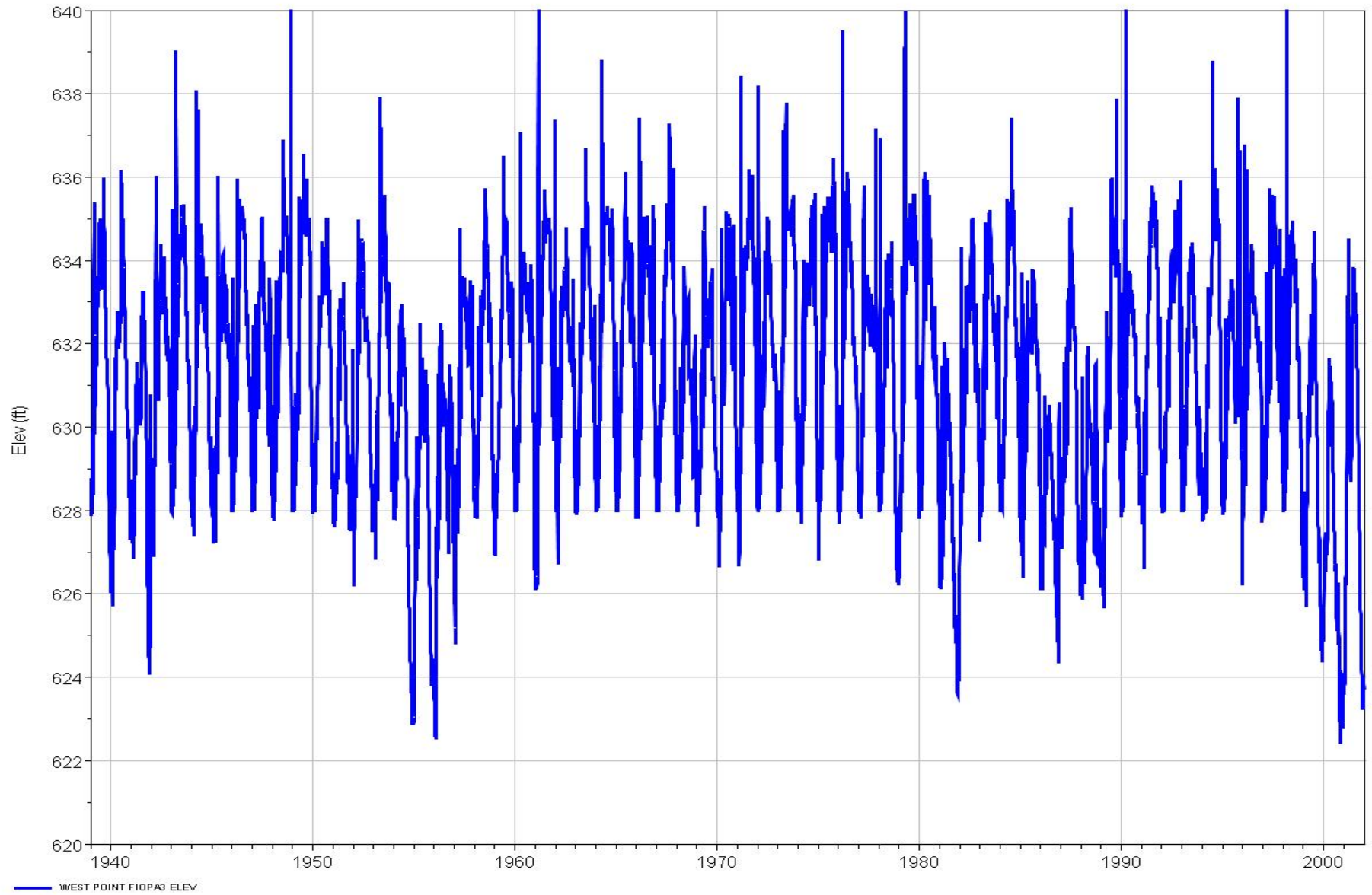
# FIOPA3 HEC-5 model summary

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C *****
C               ACF BLACK & WHITE CONDITIONS
C *****
C
C FIOPA3.DAT - ARC ACF IOP PROPOSAL 3 - 5% MR CAP WHEN SS < FULL
C GEORGE MCMAHON, Ph.D., D.WRE DEC 2006
C
C POR 1939-2001 SEQUENTIAL SIMULATION ANALYSIS OF IOP - FIOPA3
C USING HEC-5 EXECUTABLE DATED 13AUG99
C   BASED ON 1989 WCP FBA09017 ("BLACK AND WHITE") PLATFORM MODEL, 01AUG97
C   ARC IOP PROPOSAL 2:
C *****
C   WOODRUFF MINIMUM RELEASE BASED ON USACE MODIFIED IOP
C   W/10000-CFS BI THRESHOLD ADJUSTMENT JUN-FEB
C WOODRUFF MAXIMUM RELEASE WHEN SYSTEM CS (LANIER,WP,WFG) < FULL
C   MAR-MAY (SPAWNING): BI>37400, MR<=37400
C                       20400<BI<37400, MR<=MAX{20400,75%BI}
C                       BI<20400, MR<=MAX{5250,BI}
C   JUN-FEB (MUSSELS): BI>23000, MR<=23000
C                       10000<BI<23000, MR<=MAX{10000,75%BI}
C                       BI<10000, MR<=MAX{5250,BI}
C RAMPUP = RAMPDOWN RATE LIMIT (SET IN FIOPA3.DAT HEC-5 INPUT)
C OTHER PROVISIONS:
C   (1) USACE (BI.DSS F=STELLA) IOP BI AND WOODRUFF BI TARGET RELEASES
C   (2) INTERNAL CHATTAHOOCHEE R. MIFS: 750CFS(ATLANTA), 1850/1200CFS(COLUMBUS)
C   (3) NO NAVIGATION RELEASES
C   (4) FBA08017 RULE CURVES, CORRECTED (USACE INTERIM.DAT) POWER GUIDE CURVES
C   (5) USACE 6/13/06 REVISED POWER GUIDE CURVES WITH WOODRUFF 'MINI-PEAKING':
C       WEEKDAY HOURS USE
C       ZONE//LANIER//WEST POINT//W.F.GEORGE//WOODRUFF-MP//
C       1//    3//    4//    4// 3.6(15%PF)//
C       2//    2//    2//    2// 3.6(15%PF)//
C       3//    2//    2//    2// 3.6(15%PF)//
C       4//    0//    0//    0// 3.6(15%PF)//
C       GFM: AVERAGE SEASONAL PC RATIOS FROM WCPZones.XLS, TB worksheets
C   (6) LANIER-WP-WFG-JW STORAGE BALANCING PER 1989 WCP ZONES
C       WFG ZONE 3 FBA08017.DAT (USACE INTERIM.DAT) ERRORS CORRECTED
C       LANIER ZONES 2-4 RAISED 1 FOOT
C       WP ZONES 2-4 RAISED 1 FOOT
C   (7) WP OPERATES FOR COLUMBUS, WFG; BARTLETTS FERRY ROR
C   (8) GA REVISED EPD WATER DEMAND DATA (Year-2000-demands-updated.xls)
C   (9) W.F.GEORGE ZONE 3 (LEVEL 3) SEASONAL STORAGE (RS) CORRECTED
C   (10) RAMP-UP = USACE INTERIM.DAT RAMP-DOWN LIMITS BASED ON BI (DUMMY RES 400)
C *****
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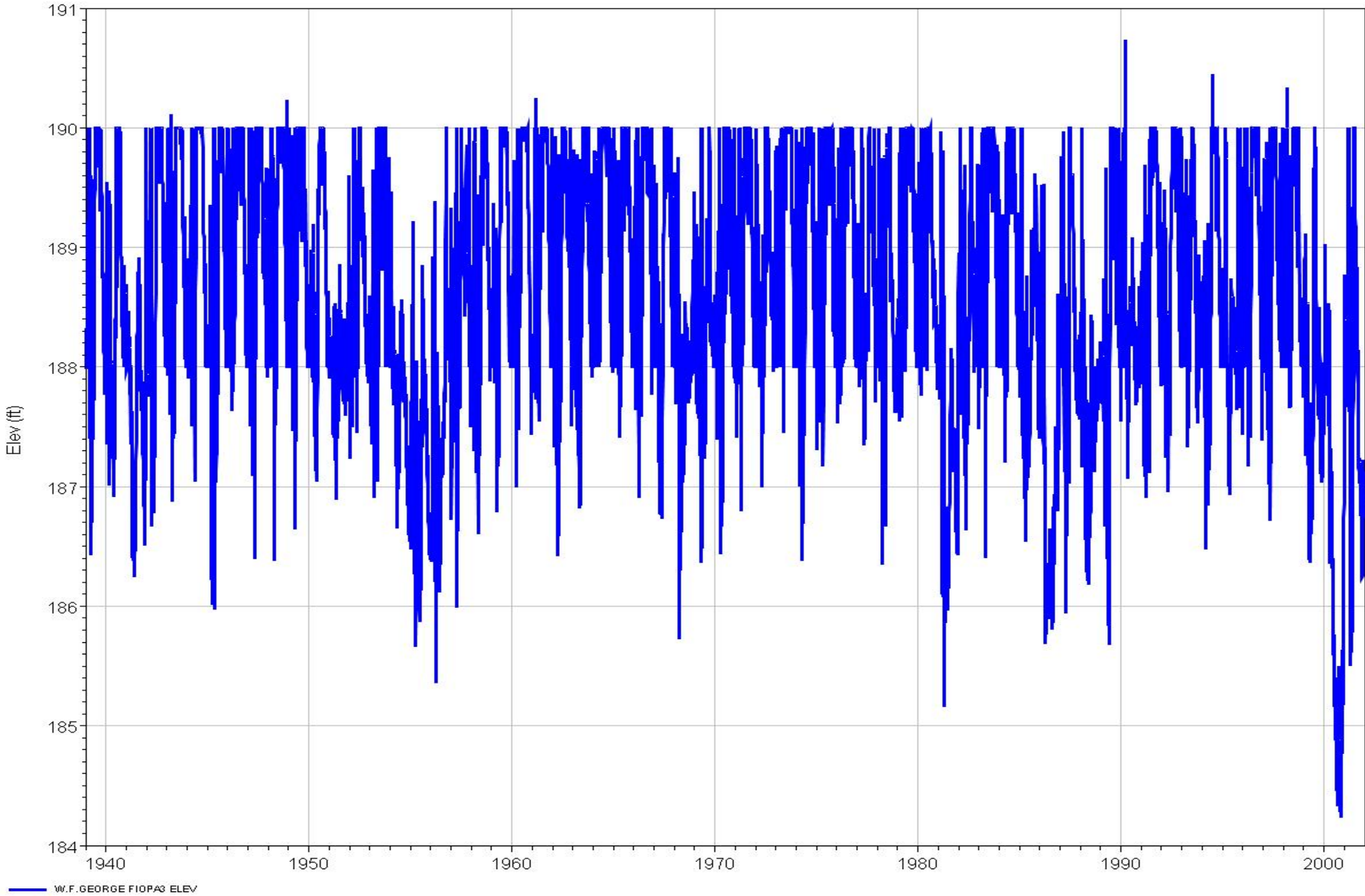
# FIOPA3 Lanier elevation – 1939-2001



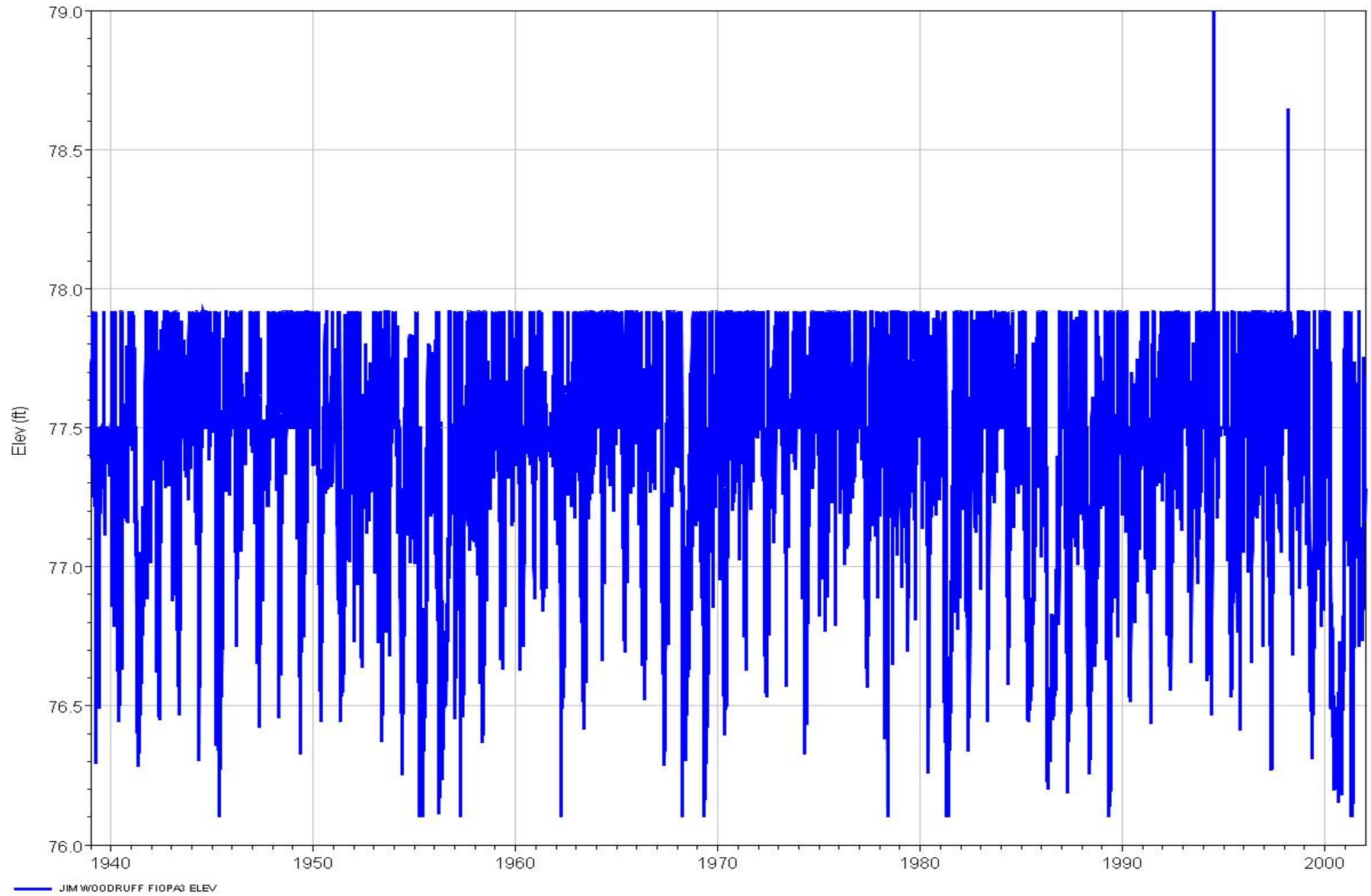
# FIOPA3 West Point elevation – 1939-2001



# FIOPA3 W.F.George elevation – 1939-2001



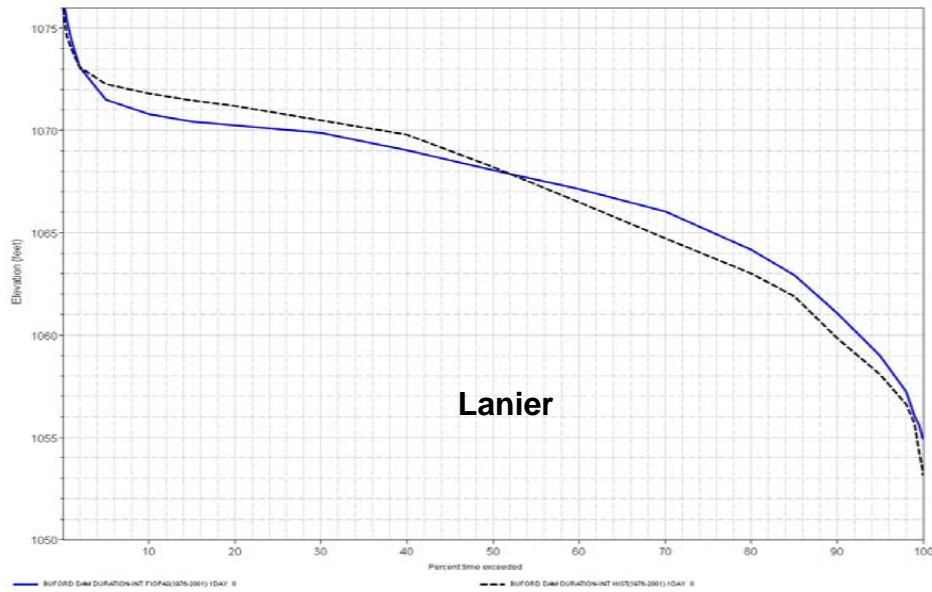
# FIOPA3 Jim Woodruff elevation – 1939-2001



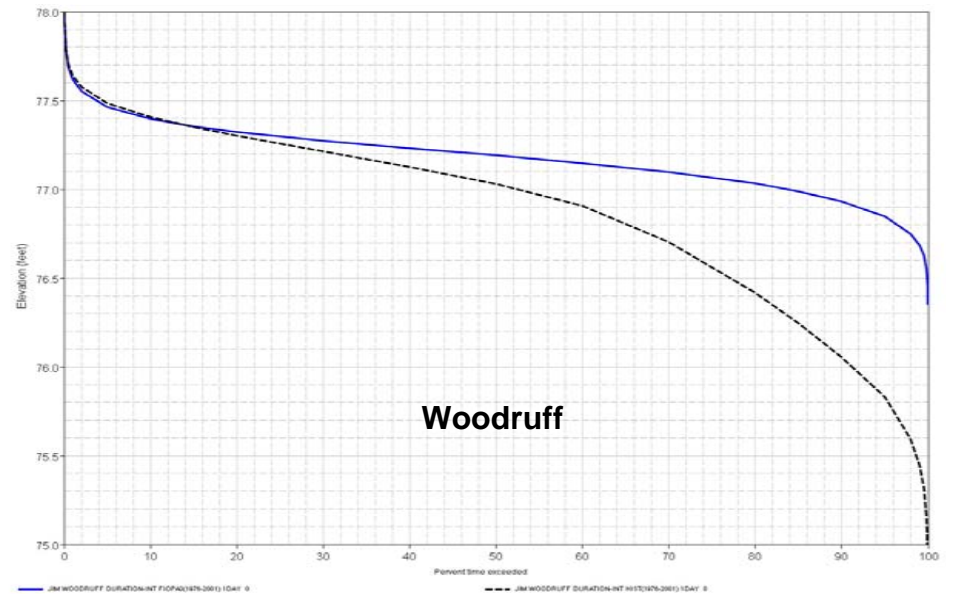
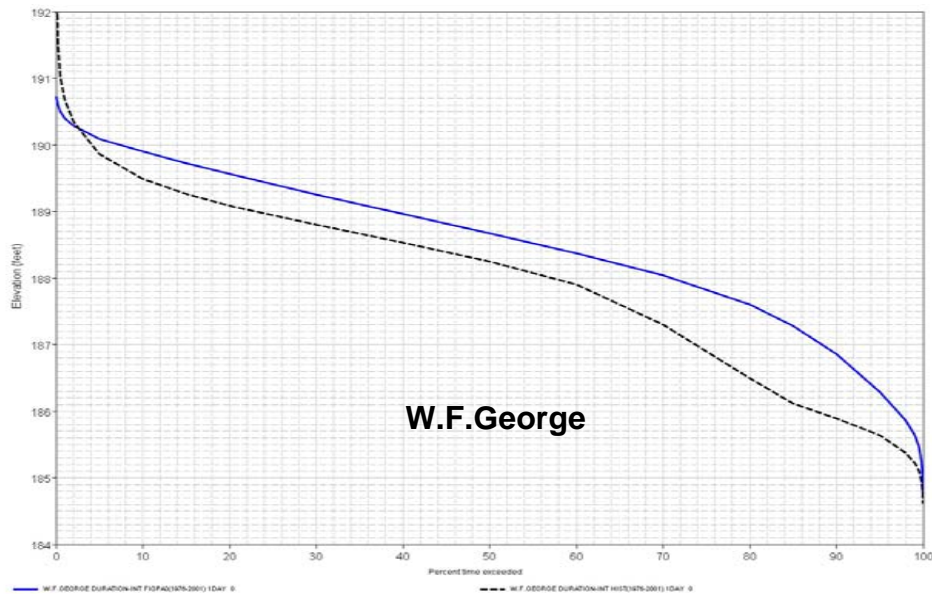
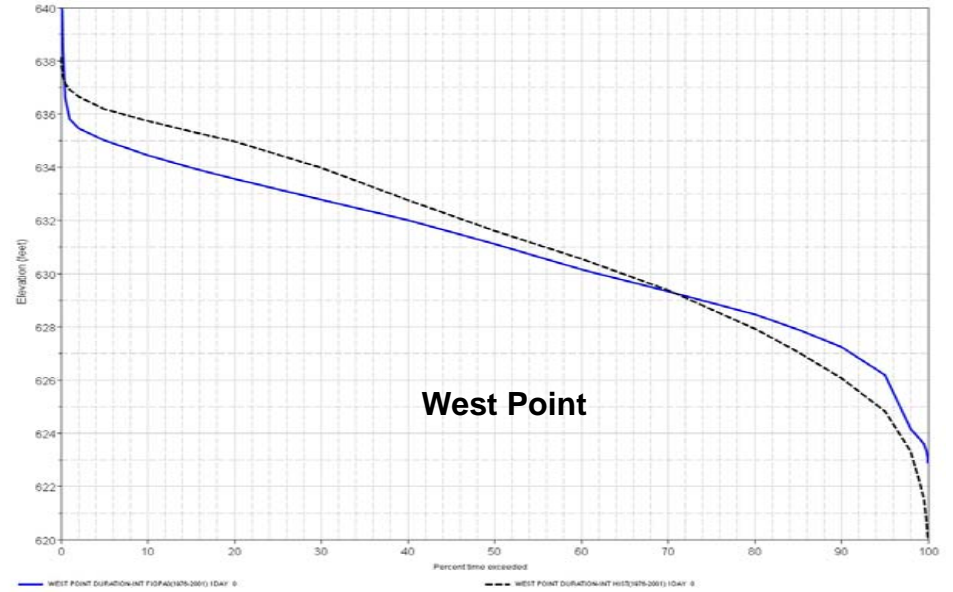


# FIOPA3 elevation-duration – 1976-2001

Simulated Historical

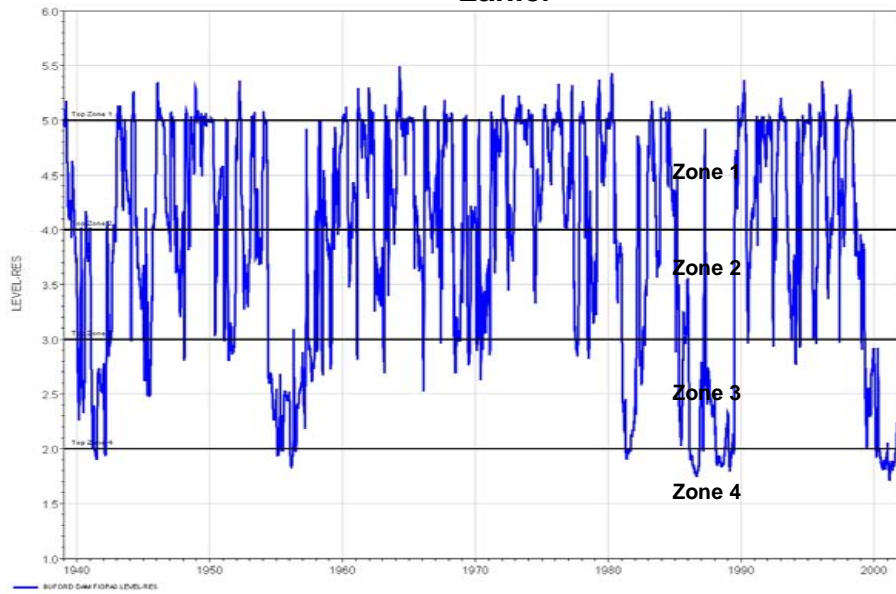


Simulated Historical

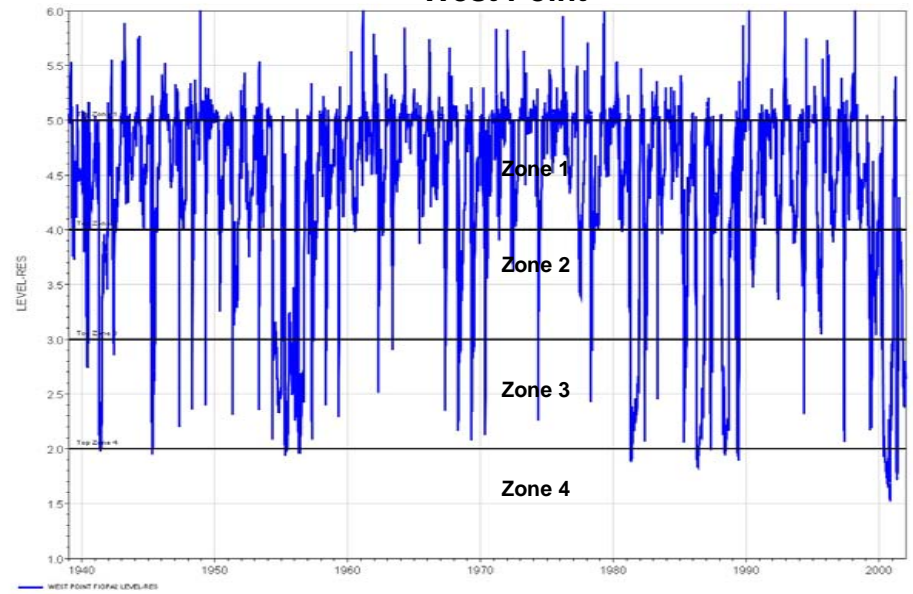


# FIOPA3 zones – 1939-2001

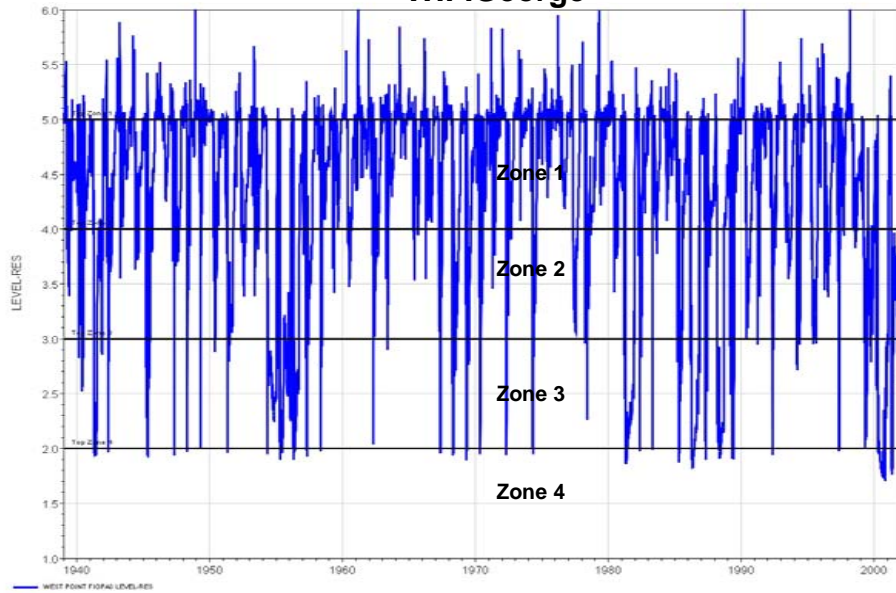
## Lanier



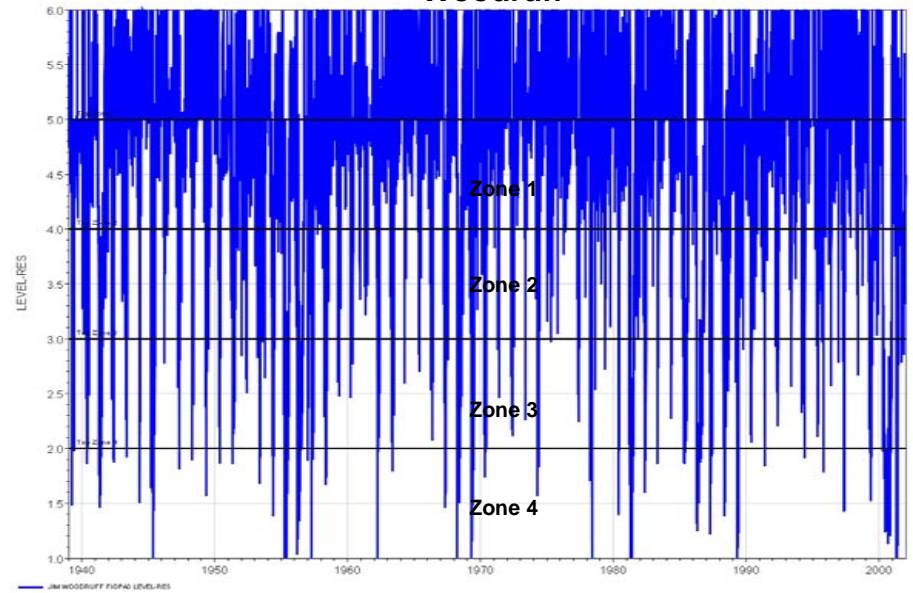
## West Point



## W.F.George

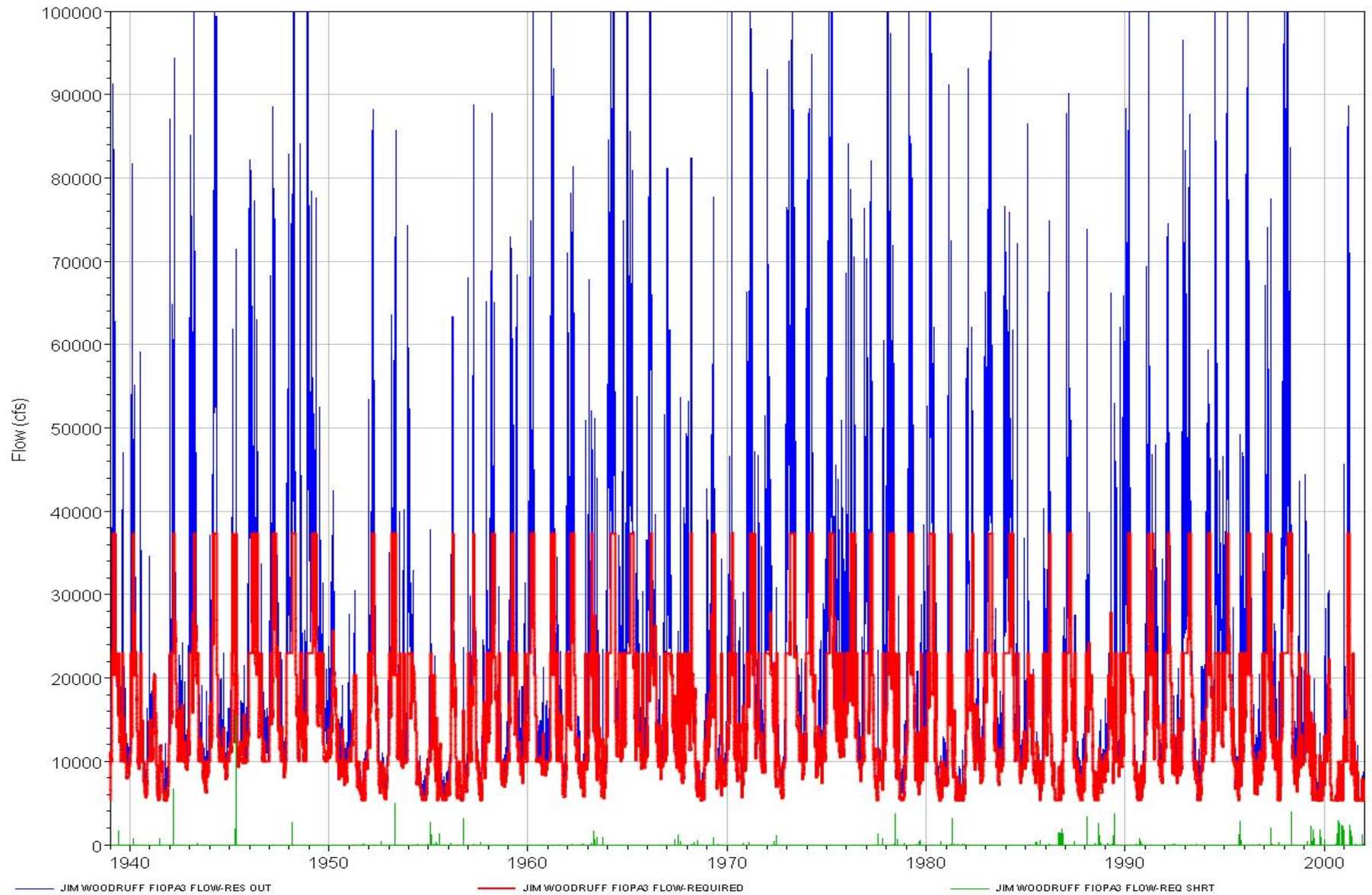


## Woodruff





# FIOPA3 Jim Woodruff releases, targets, shortages



# Conclusions, recommendations

- USACE 10/05–10/06 Woodruff release statistics:
  - Average Woodruff release  $\approx$  105% BI
  - Average Woodruff release  $\approx$  140% IOP target
- FIOPA3 1939–2001 statistics:
  - Average Woodruff release  $\approx$  101% BI
  - Average Woodruff release  $\approx$  138% IOP target
- FIOPA3 performance:
  - Lanier pools about as high as historical, significant improvement over FIOPA2
  - West Point pool lower than historical, slightly higher than FIOPA2
  - W.F.George, Woodruff pools higher than historical, slightly higher than FIOPA3
- Recommendations:
  - Over-release caps, rampup rate limits essential to minimize risk of excessive reservoir drawdown
  - Raising Lanier, West Point top of zones 2-4 by 1 foot beneficial to all reservoirs