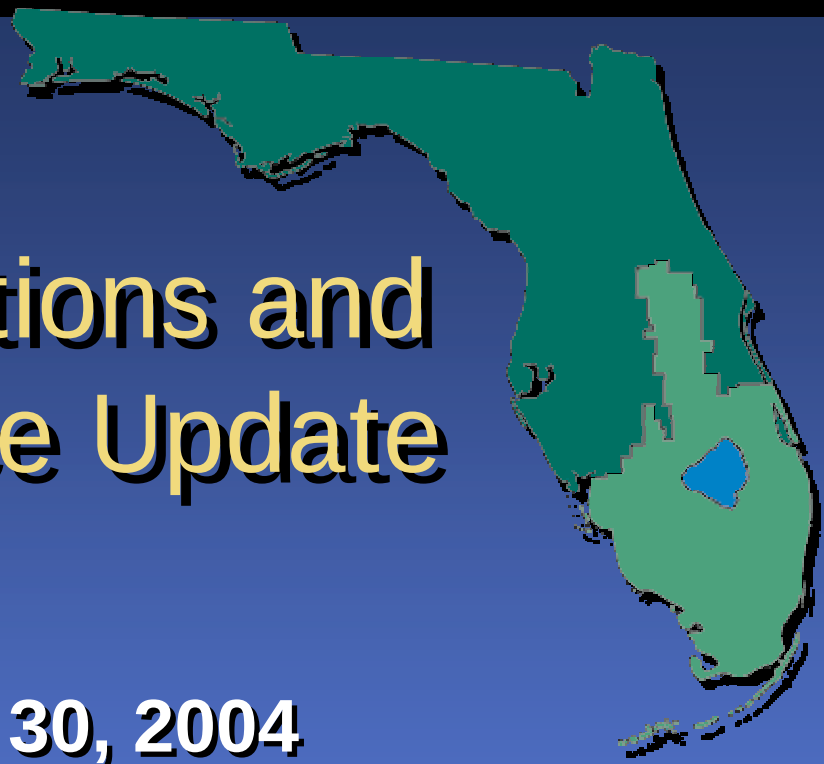
SOUTH FLORIDA WATER MANAGEMENT DISTRICT



STA Operations and Performance Update

November 30, 2004

Gary Goforth
Chief Consulting Engineer
South Florida Water Management District

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Overview

- Operations and performance dominated by hurricane flows and loads

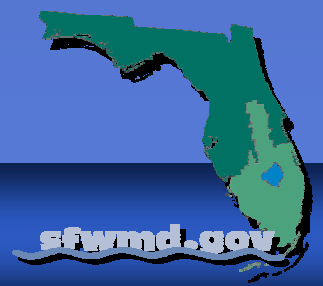
- STA-3/4 (October 2003 – September 2004)

  Inflow: 445,630 AF; 48,566; 88 ppb

  Outflow: 432,649 AF; 6,579 kg; 12 ppb

  Removal: 42 tons; 86%

- STA-6 fire at inflow pump station destroyed 2 pumps

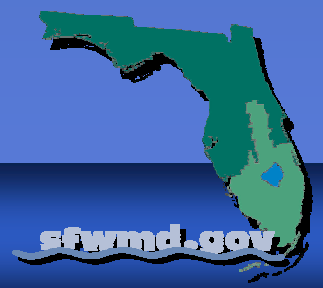


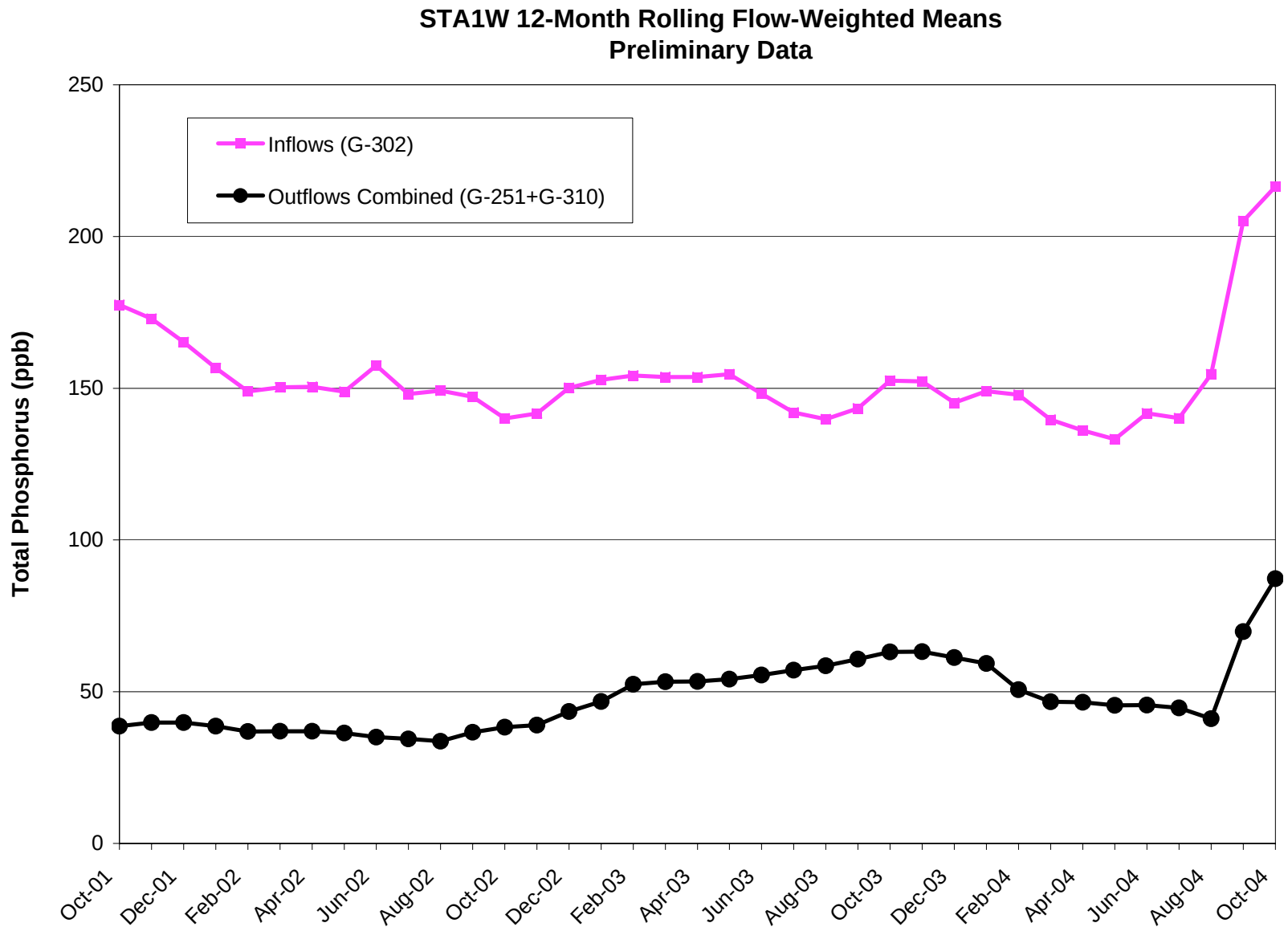
September 2004

- Glancing blows from Hurricanes Frances, Ivan and Jeanne

- In general, STAs performed well
  - Inflow: 414,000 acre feet & 96 tons of phosphorus
    - 30% of annual flows; 60% of annual loads
  - 65 m tons removed (70%)
  - Average outflow = 53 ppb
  - STA-1E was utilized

- STA-1W was severely impacted by storms
  - Inflow: 109,900 AF (70% of annual flows)
    - 40 tons (150% of annual loads); 296 ppb
  - Outflow: 19 tons; average TP = 123 ppb
  - 21 m tons removed




STA1W 12-Month Rolling Flow-Weighted Means
Preliminary Data
Total Phosphorus (ppb)
250
200
150
100
50
0
Inflows (G-302)
Outflows Combined (G-251+G-310)
Oct-01
Dec-01
Feb-02
Apr-02
Jun-02
Aug-02
Oct-02
Dec-02
Feb-03
Apr-03
Jun-03
Aug-03
Oct-03
Dec-03
Feb-04
Apr-04
Jun-04
Aug-04
Oct-04

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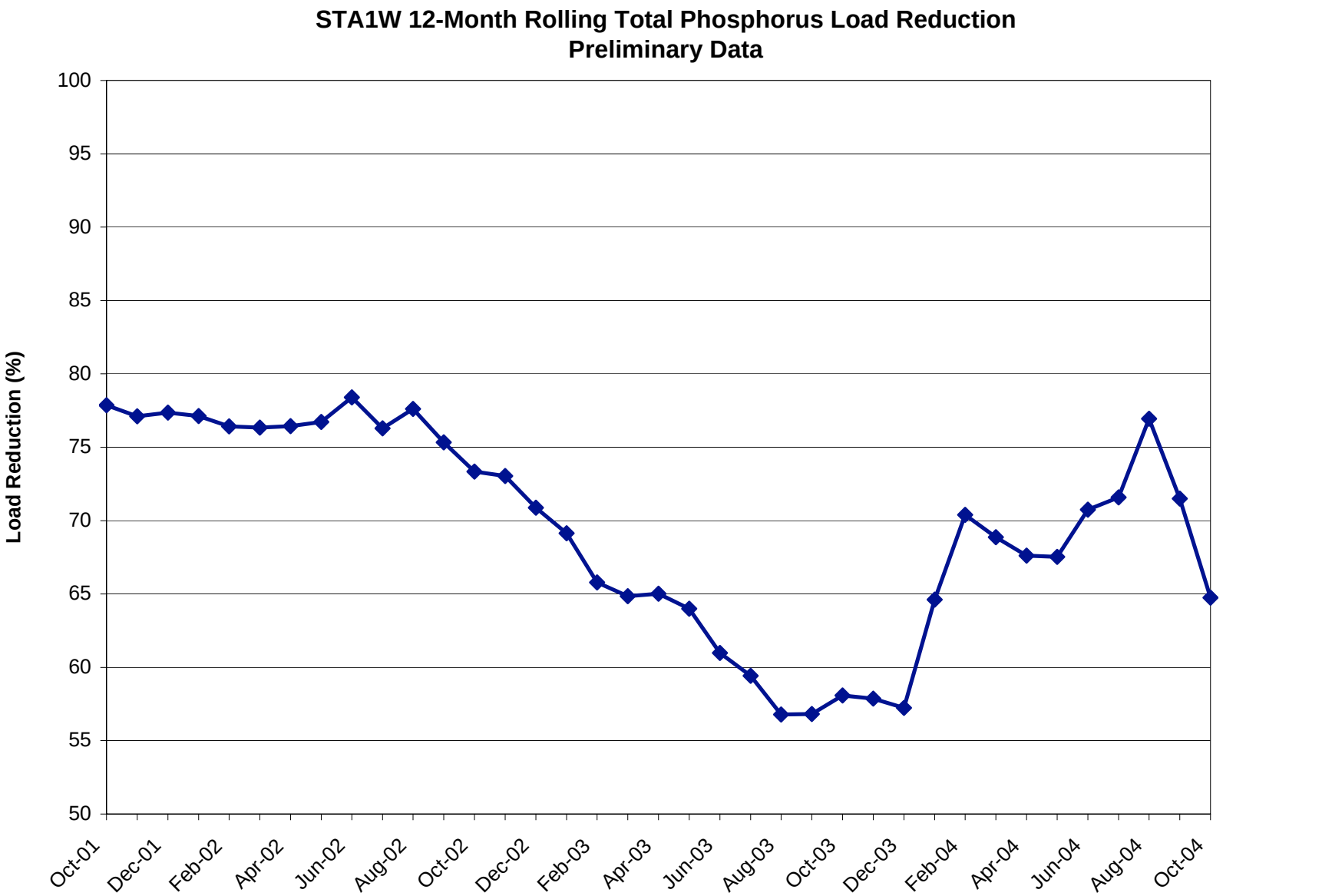
STA1W 12-Month Rolling Total Phosphorus Load Reduction
Preliminary Data
Load Reduction (%)
100
95
90
85
80
75
70
65
60
55
50
Oct-01
Dec-01
Feb-02
Apr-02
Jun-02
Aug-02
Oct-02
Dec-02
Feb-03
Apr-03
Jun-03
Aug-03
Oct-03
Dec-03
Feb-04
Apr-04
Jun-04
Aug-04
Oct-04

Effects of wind and wave action on north levee

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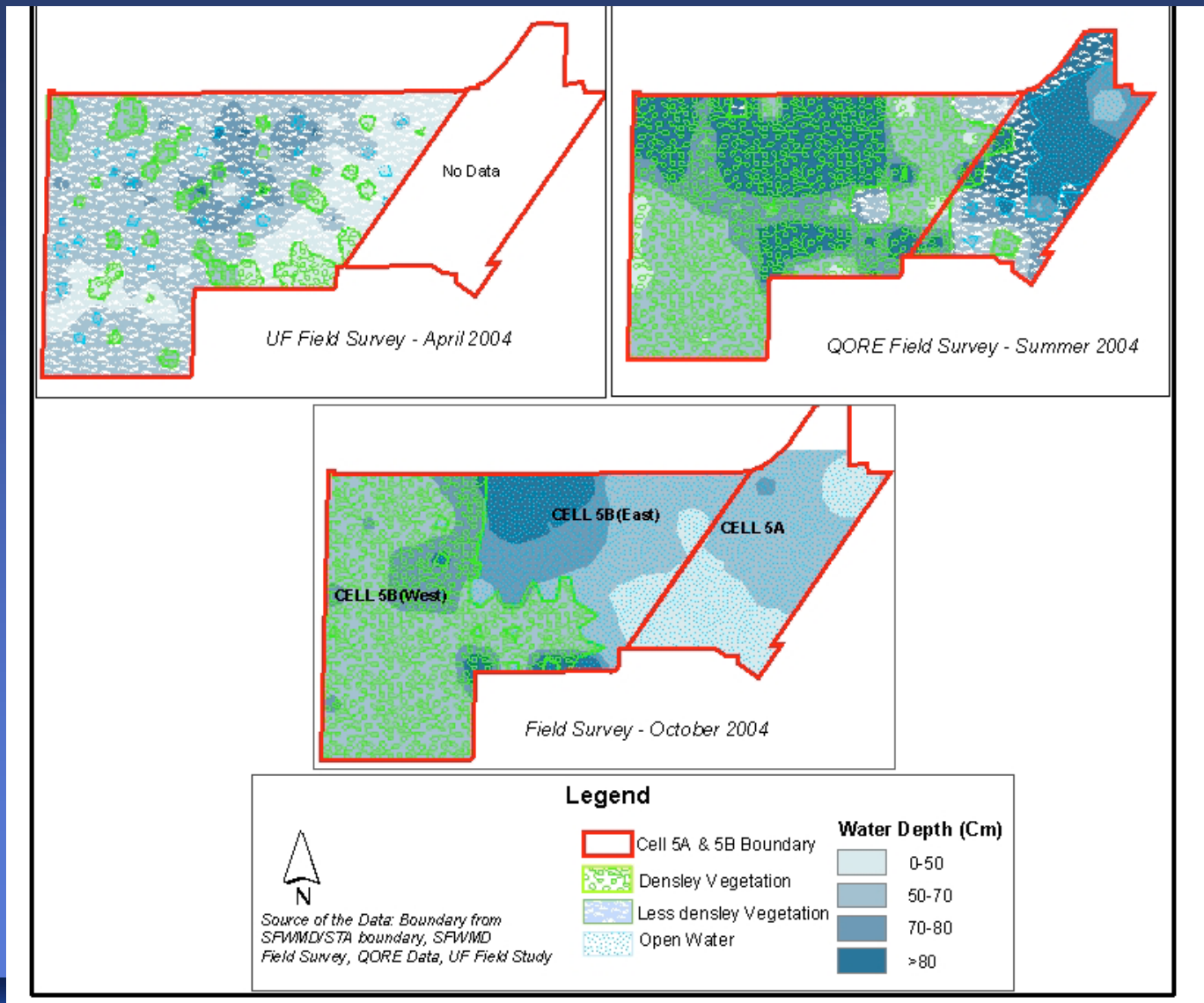
Loss of SAV due to storm action



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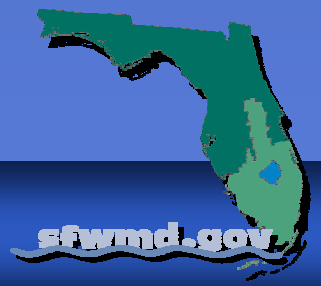
Water Year 2005
(preliminary data through 10/04)

- STA-1W
  - Inflow: 287,187 AF; 91,306 kg; 258 ppb
  - Outflow: 325,794 AF; 39,130 kg; 97 ppb

- STA-2
  - Inflow: 240,289 AF; 39,187 kg; 132 ppb
  - Outflow: 275,736 AF; 6,608 kg; 19 ppb



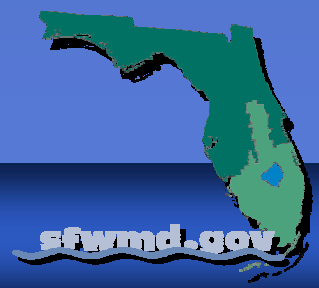
Water Year 2005
(preliminary data through 10/04)

- STA-3/4 (May – September)
  - Inflow: 422,327 AF; 47,159 kg; 91 ppb
  - Outflow: 404,941 AF; 6,033 kg; 12 ppb

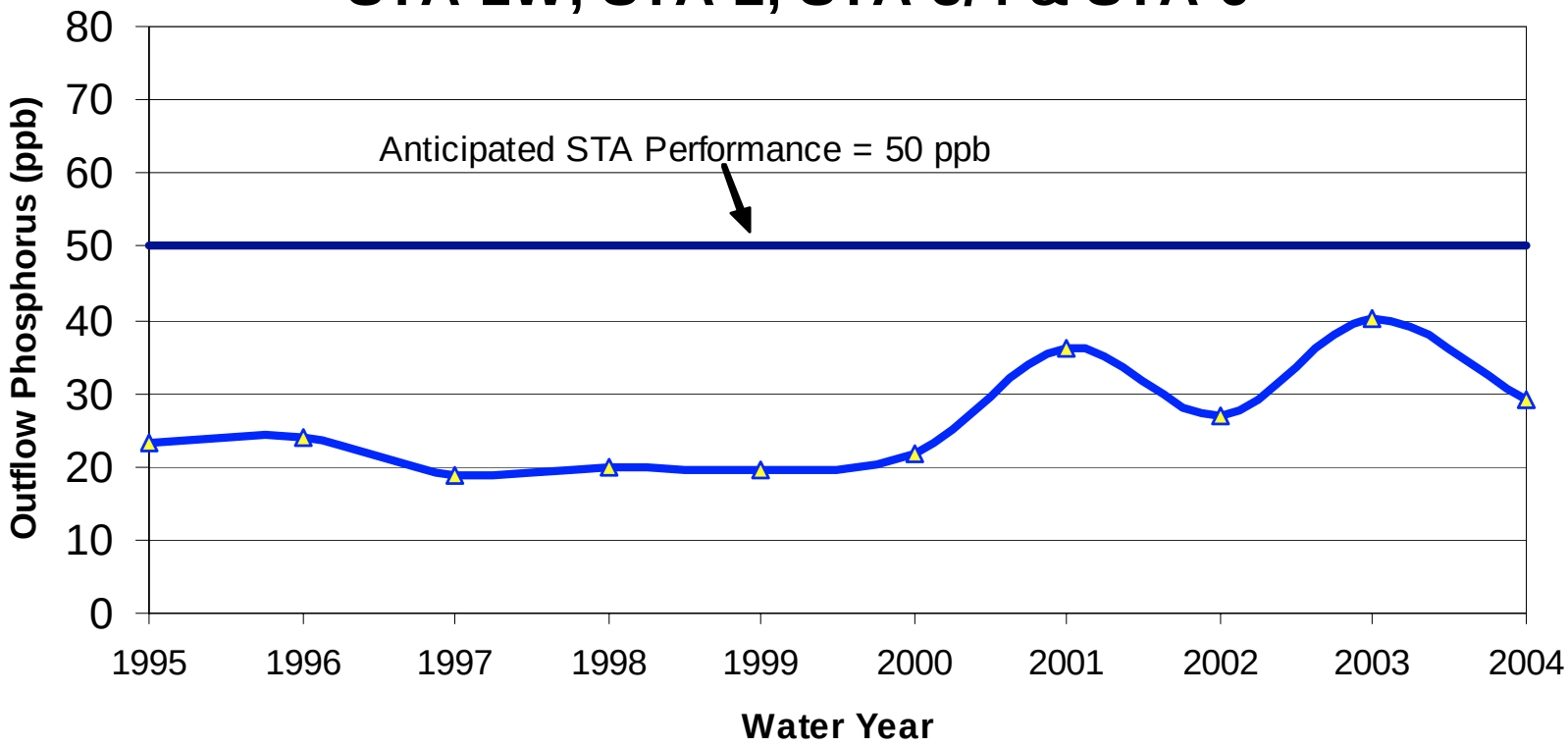
- STA-5
  - Inflow: 93,705 AF; 21,324 kg; 184 ppb
  - Outflow: 101,175 AF; 10,280 kg; 82 ppb
  - Additional treatment provided by STA-3/4

Water Year 2005
(preliminary data through 10/04)

- STA-6 (data collection reduced due to fire)
  - Inflow: 23,358 AF; 2,875 kg, 100 ppb
  - Outflow: 17,760 AF; 439 kg; 20 ppb



STA Performance
STA-1W, STA-2, STA-3/4 & STA-6



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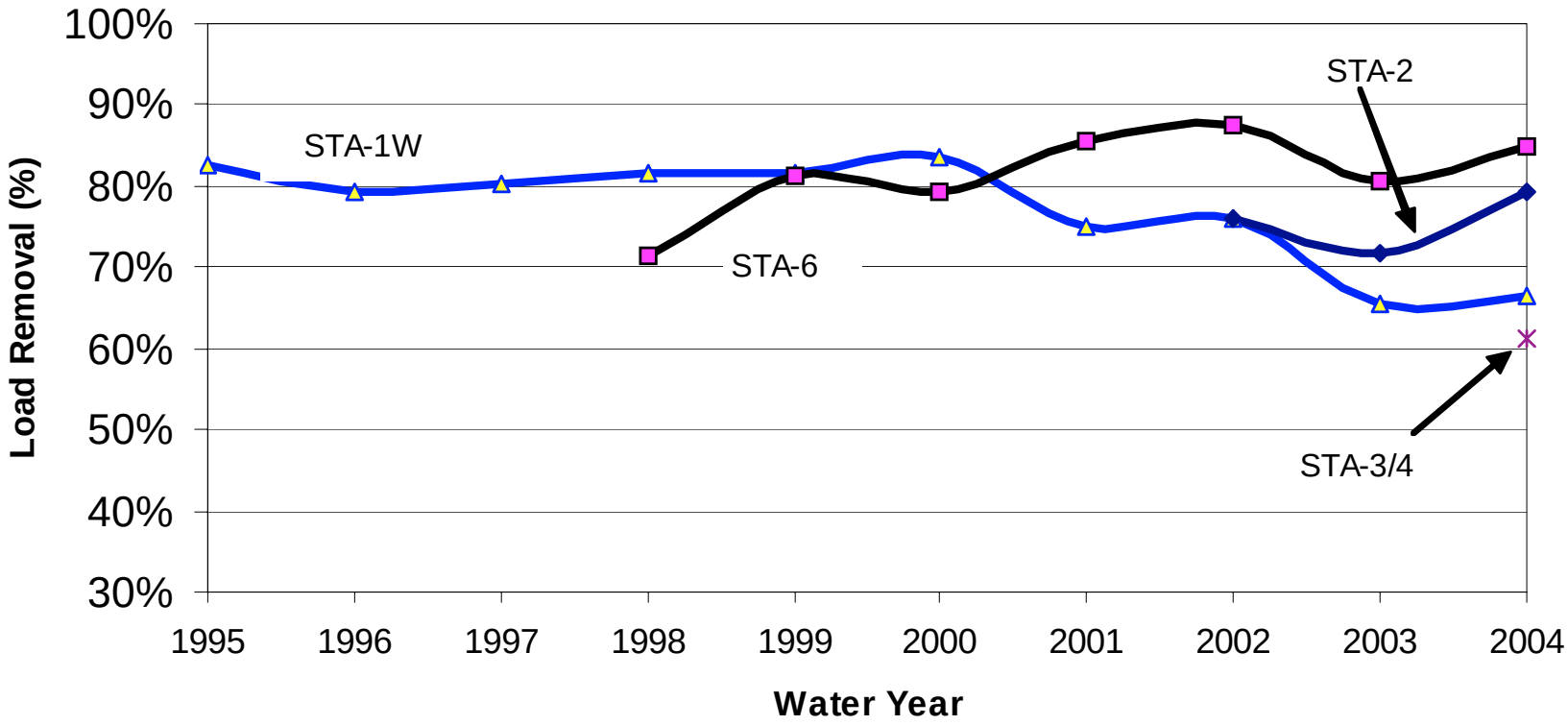
Phosphorus Load Removal - STA-1W, STA-2, STA-3/4 & STA-6
Cumulative Removal = 74%
Load Removal (%)
100%
90%
80%
70%
60%
50%
40%
30%
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Water Year
STA-1W
STA-2
STA-6
STA-3/4

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