# Stormwater Treatment Areas Water Year 2014 Performance

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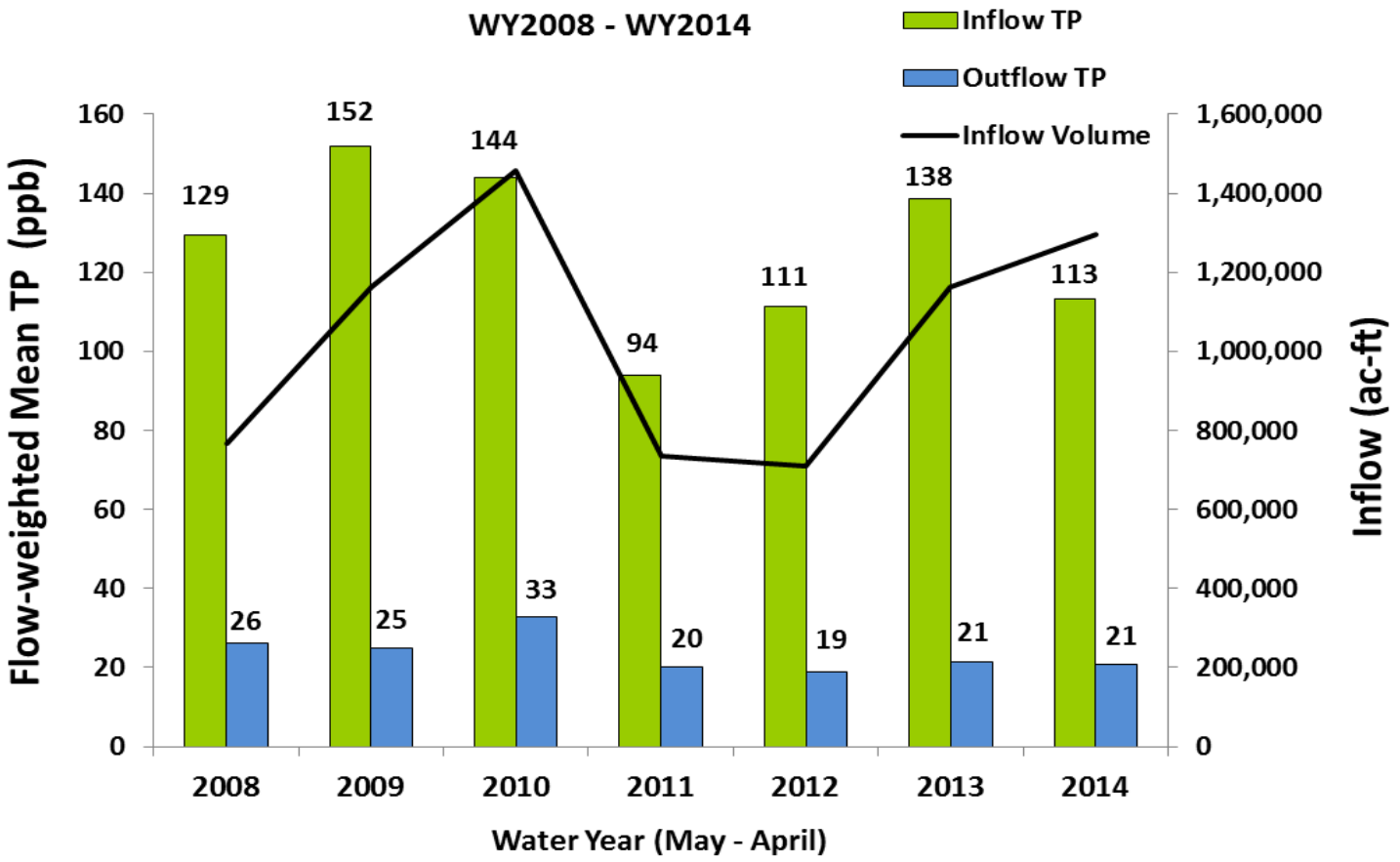
*Water Quality Treatment Technologies*

*Long-Term Plan Meeting, May 20, 2014*

# Water Year 2014 Performance Highlights *(preliminary data)*

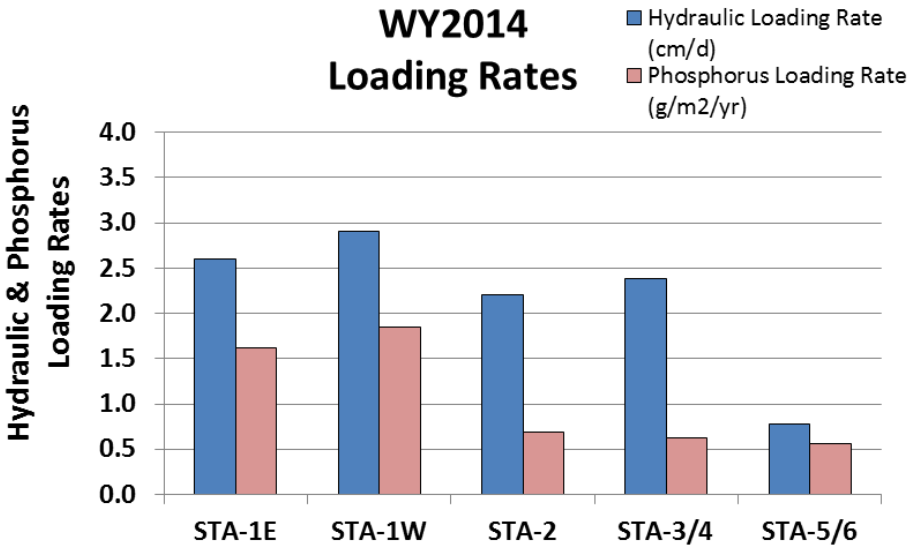
- Over 1,200,000 ac-ft inflow water treated
- Inflow TP concentrations reduced from 113 ppb to 21 ppb
- 84% TP load retained
- Lake Okeechobee regulatory releases treated
  - More than 175,000 ac-ft delivered (through 4/23/14)
  - Treated in STA-1E, STA-1W, STA-2, & STA-3/4
- Appropriate stages maintained except for areas in STA-5/6 due to dry season effects

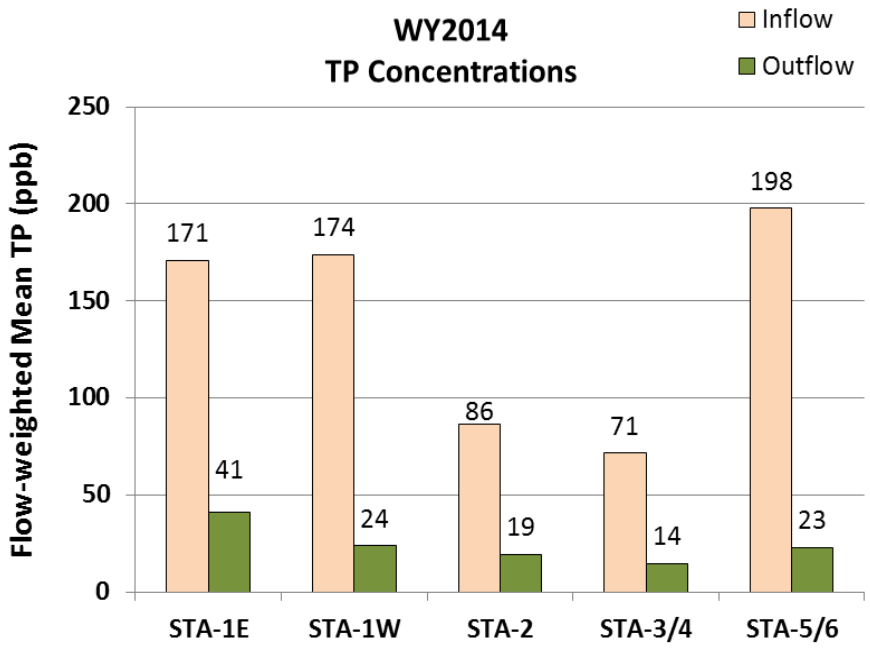
# Combined STA Performance




*Graph contains preliminary data*

# WY2014
# Loading Rates & Concentrations



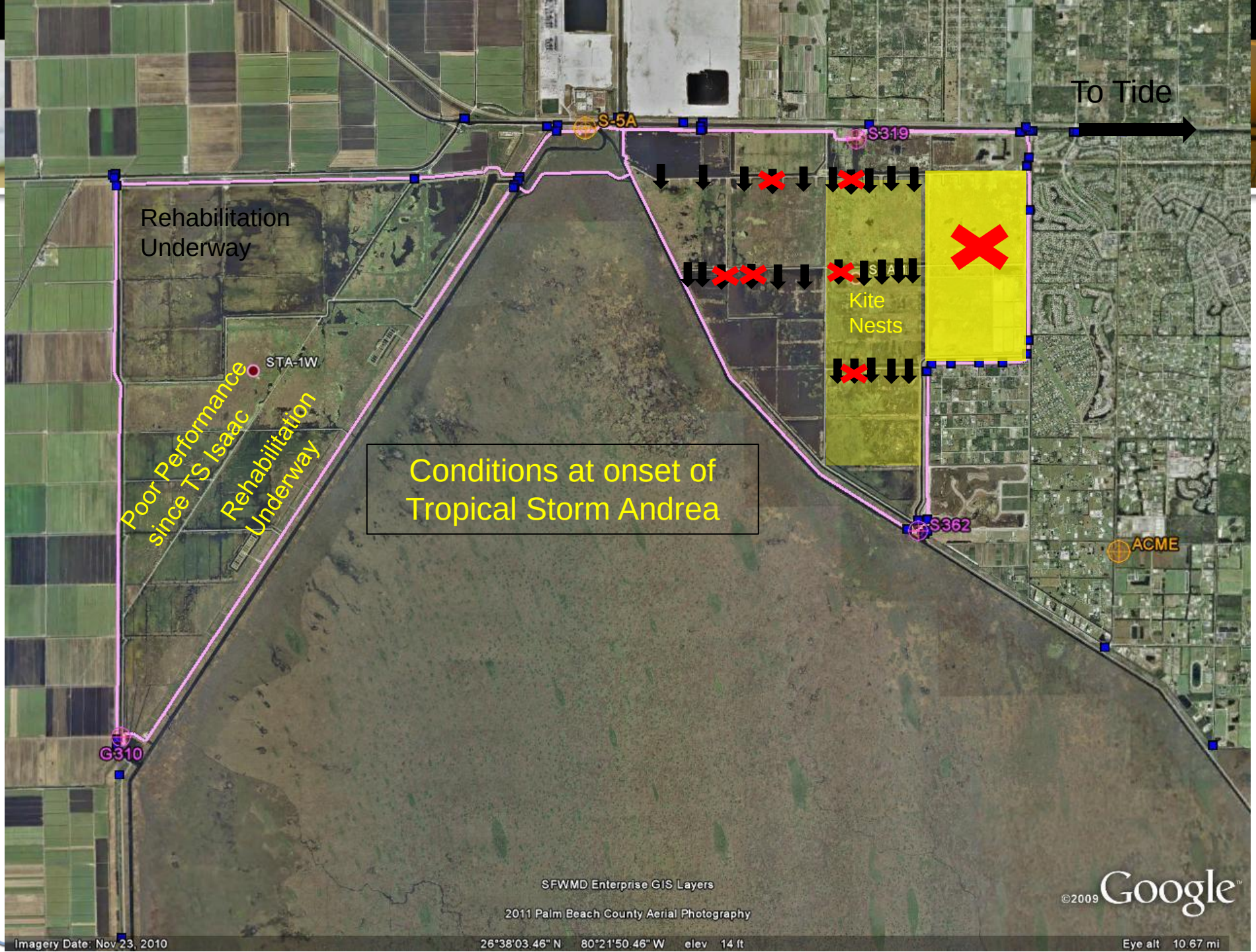

*Graphs contain preliminary data.*

# Conditions Leading to Tropical Storm Andrea Diversions Eastern Flowpath

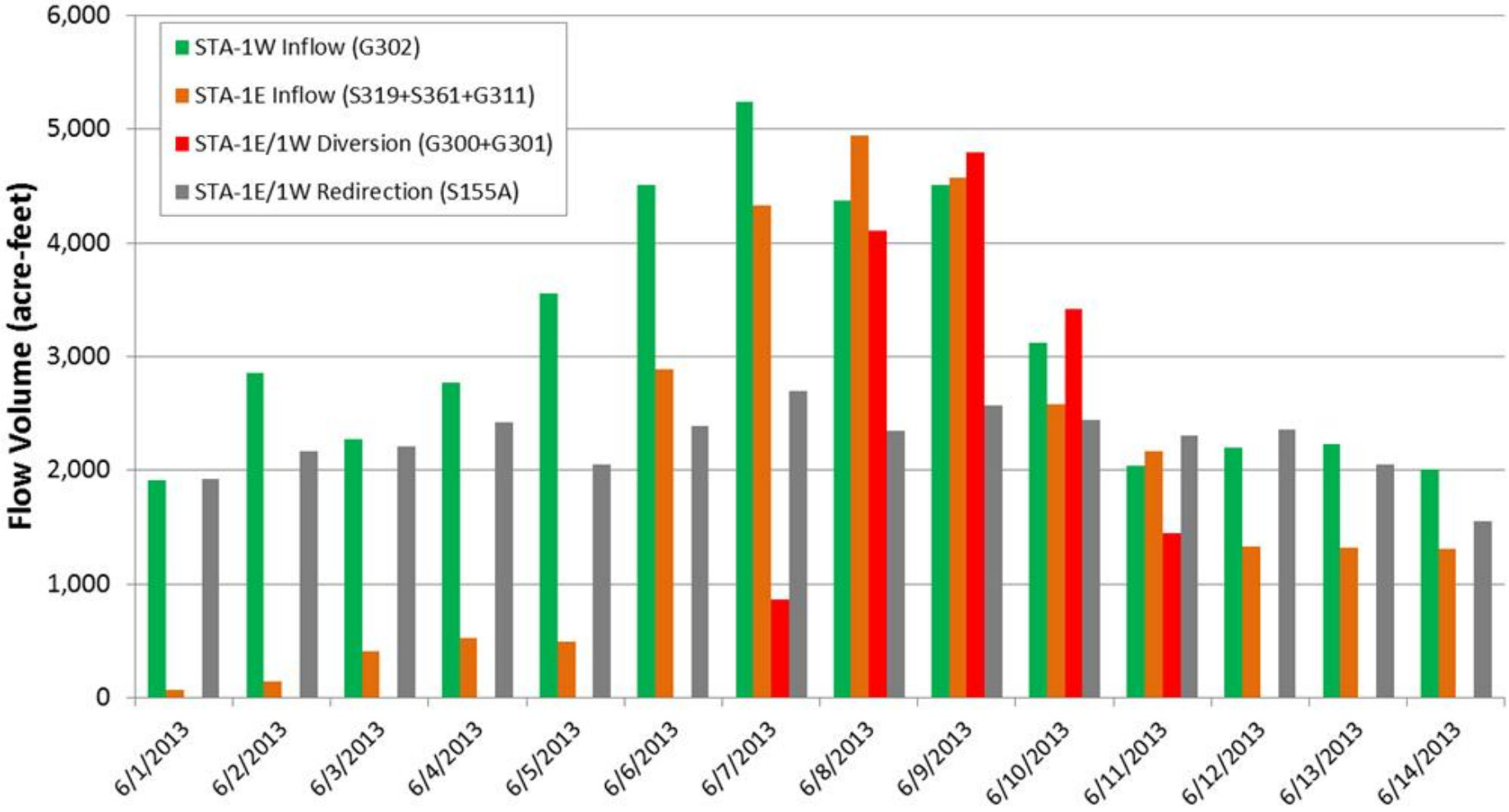
- **STA-1E**
  - Eastern Flow-way off-line due to construction (PSTA decommissioning)
  - Central Flow-way restricted 20% due to 1 of 5 culverts under construction and stage restricted due to 3 Snail Kite nests in cell 4N
  - Western Flow-way restricted 30% due to 2 of 6 culverts under construction
- **STA-1W**
  - Eastern and Northern flowway rehabilitation - 17,000 hours of plantings
  - Black-necked stilts nesting in Western Flow-way

# Conditions Leading to Tropical Storm Andrea Diversions Eastern Flowpath

- Friday 6/7/13
  - Continuous basin runoff during week, stages rising rapidly in STAs to 4 ft. depth, additional basin rainfall predicted.
  - In consideration of anticipated runoff and rainfall and to avoid substantial damage to STA-1E and STA-1W at the start of the wet season, partial diversion made through G-300 and G-301.


To Tide
S-5A
S319
S362
ACME
G310
STA-1W
Rehabilitation Underway
Kite Nests
Poor Performance since TS Isaac
Rehabilitation Underway
Conditions at onset of Tropical Storm Andrea
SFWMD Enterprise GIS Layers
2011 Palm Beach County Aerial Photography
©2009 Google
Imagery Date: Nov 23, 2010
26°38'03.46" N 80°21'50.46" W elev 14 ft
Eye alt 10.67 mi

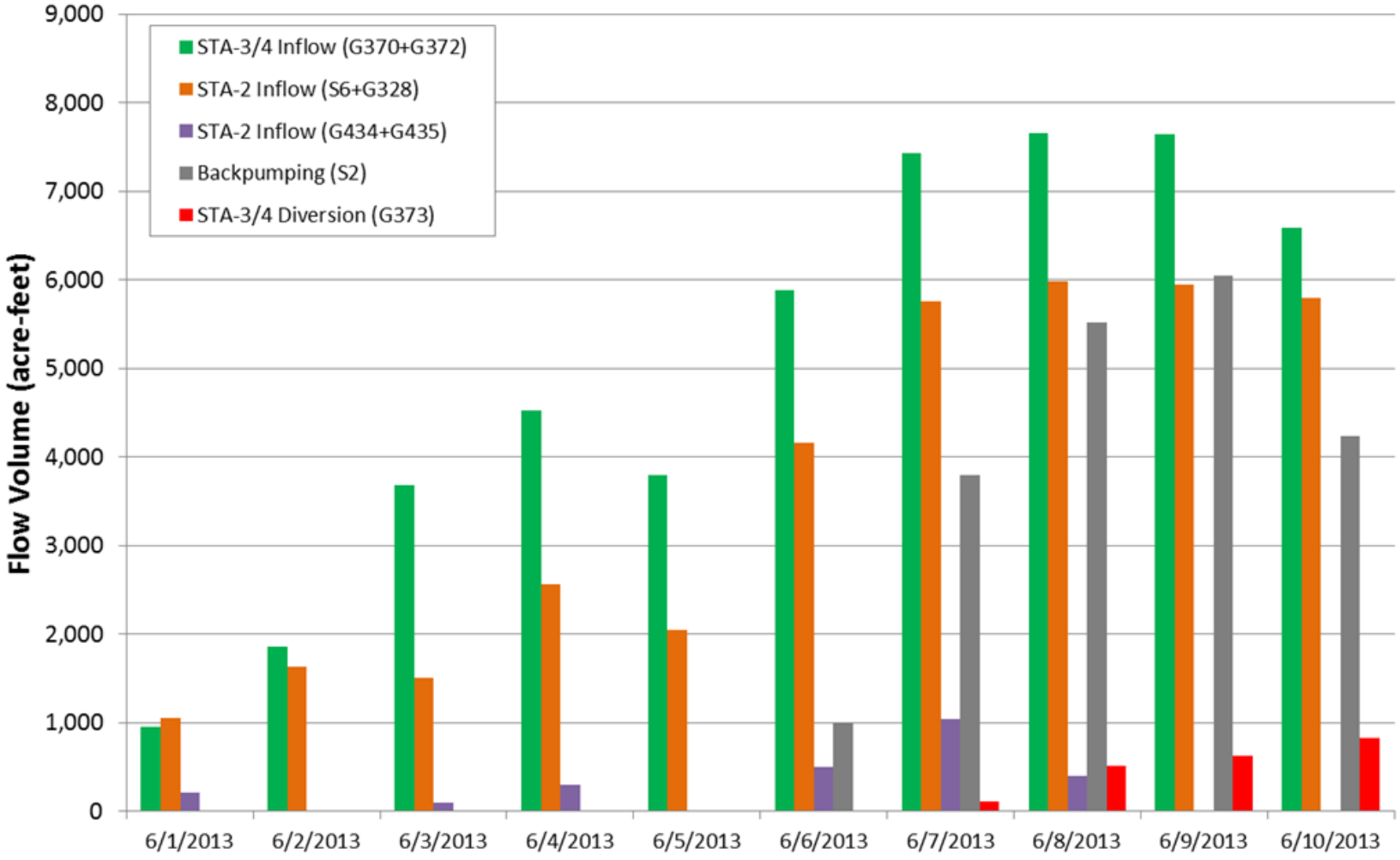
# Tropical Storm Andrea
# Eastern Flowpath Diversion Summary
# STA-1E and STA-1W



# Conditions Leading to Tropical Storm Andrea Diversions Central Flowpath

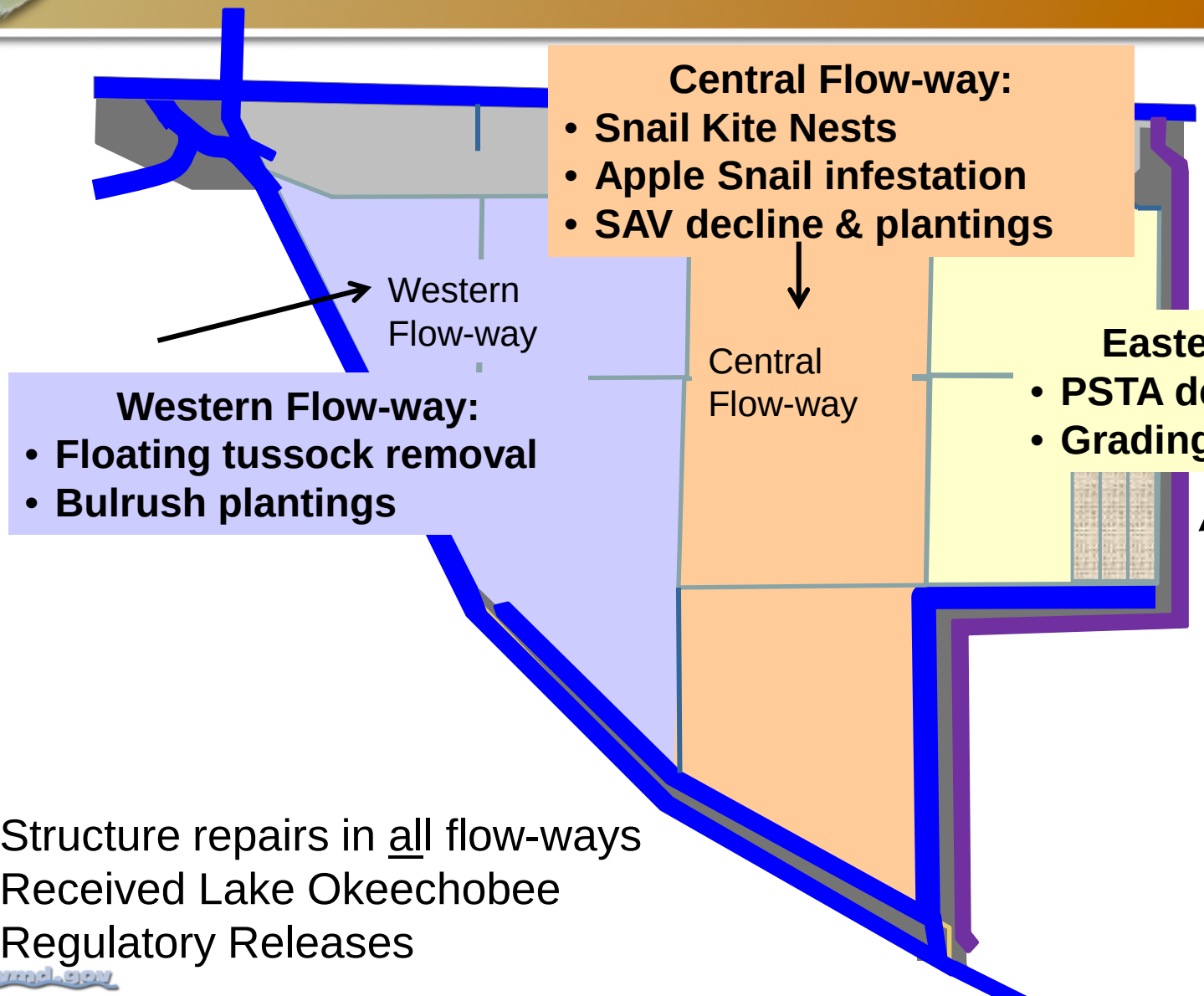
- **STA-2**
  - STA inflows at maximum capacity
- **STA-3/4**
  - Conveyance capacity restricted to avoid substantial damage to essential rehabilitation effort in central flowway
  - Back-pumping to Lake Okeechobee had begun at S-2 on 6/6/13 due to rising canal stages (≥ 12.5 ft.)
- **Friday 6/7/13**
  - Continuous basin runoff during the week, depths increased in STA-3/4 to over 4 ft.
  - Additional basin rainfall predicted
  - In consideration of anticipated runoff and rainfall, and to avoid substantial damage to STA-3/4 at the start of the wet season, decision was made to divert portion of flow via Miami Canal

# Tropical Storm Andrea
# Central Flowpath Diversion Summary
# STA-2 and STA-3/4



# STA WY2014 Performance

# STA-1E




- Structure repairs in all flow-ways
- Received Lake Okeechobee Regulatory Releases

# Exotic Apple Snails Infestation

- Large number of exotic Apple Snails in STA-1E Cell 4S
- Significant loss of SAV due to foraging
    - Leaves stripped from stems
- STA performance negatively affected
- Multidisciplinary team formed to identify causes for snail population explosion & management options


Apple snail laying eggs

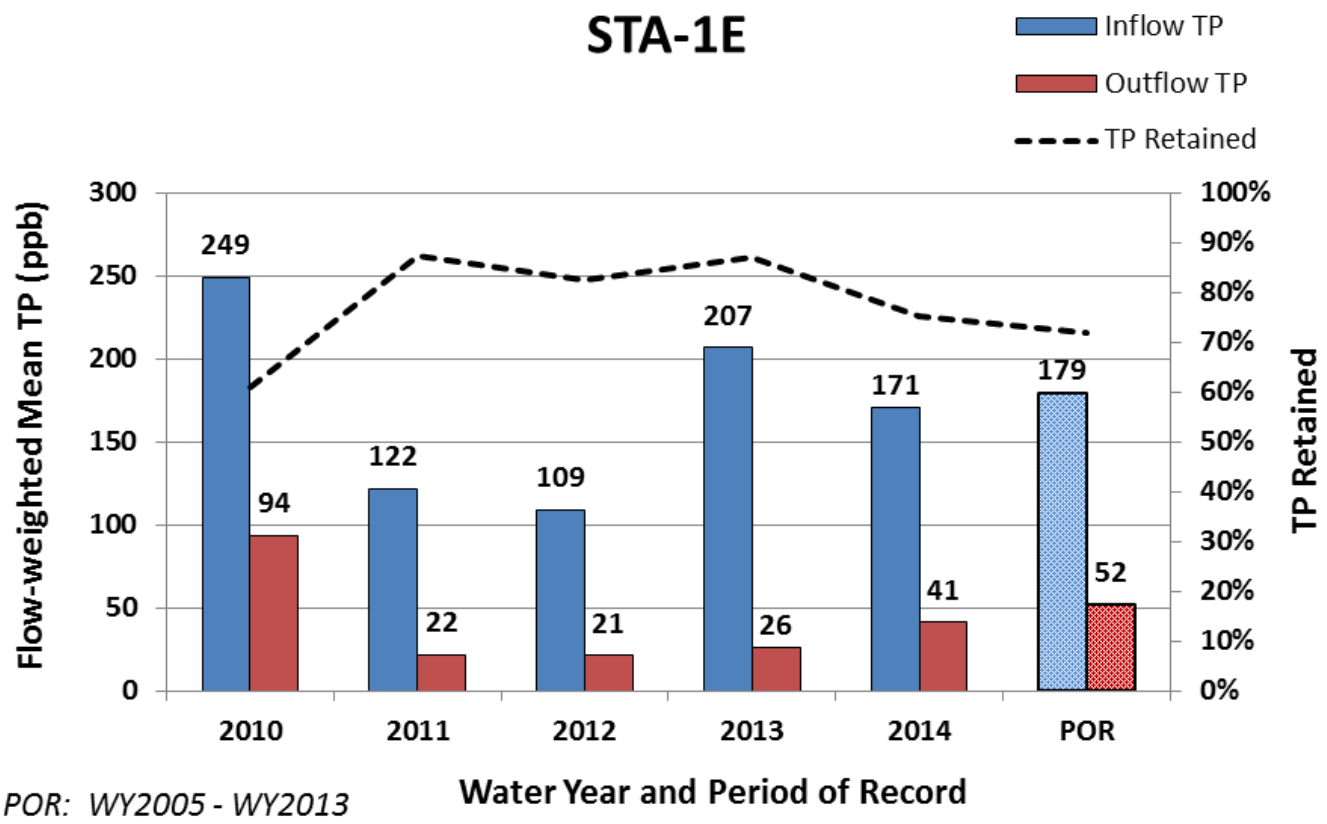

Defoliated SAV


Healthy SAV


Apple Snail egg masses on Cattails

# STA-1E Performance

## WY2010 – WY2014 & Period of Record

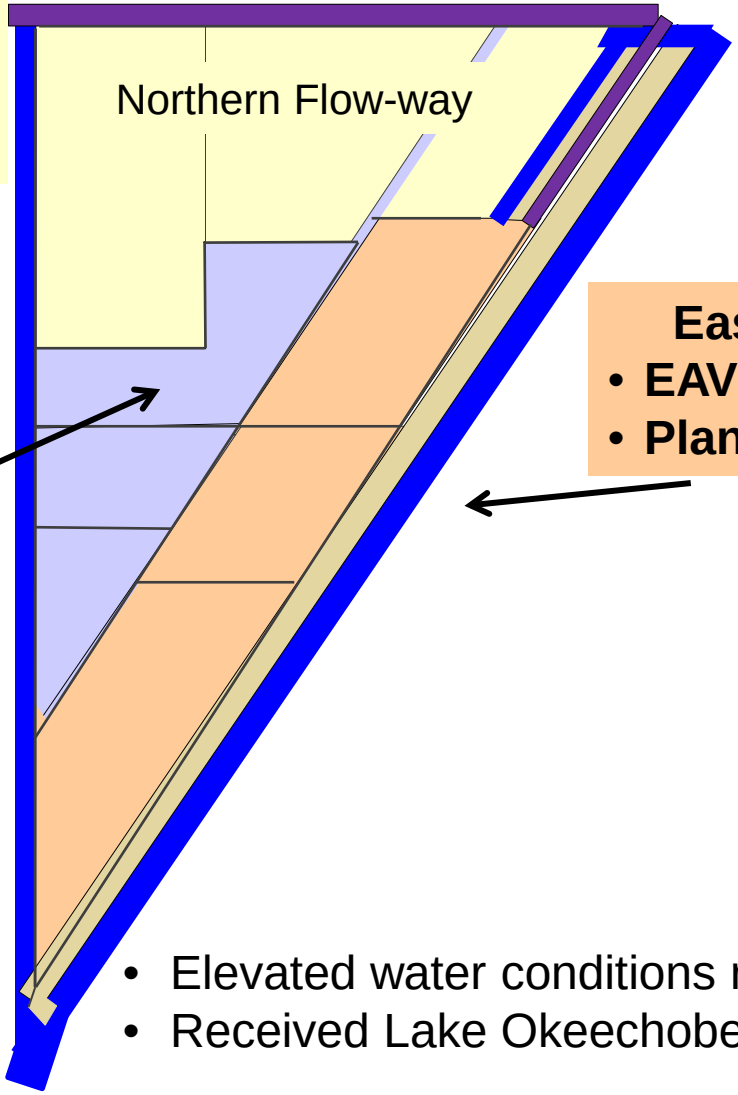



*POR: WY2005 - WY2013*

*Graph contains preliminary data.*

# STA-1W

**Northern Flow-way:**
- **SAV inoculation**
- **Plantings**

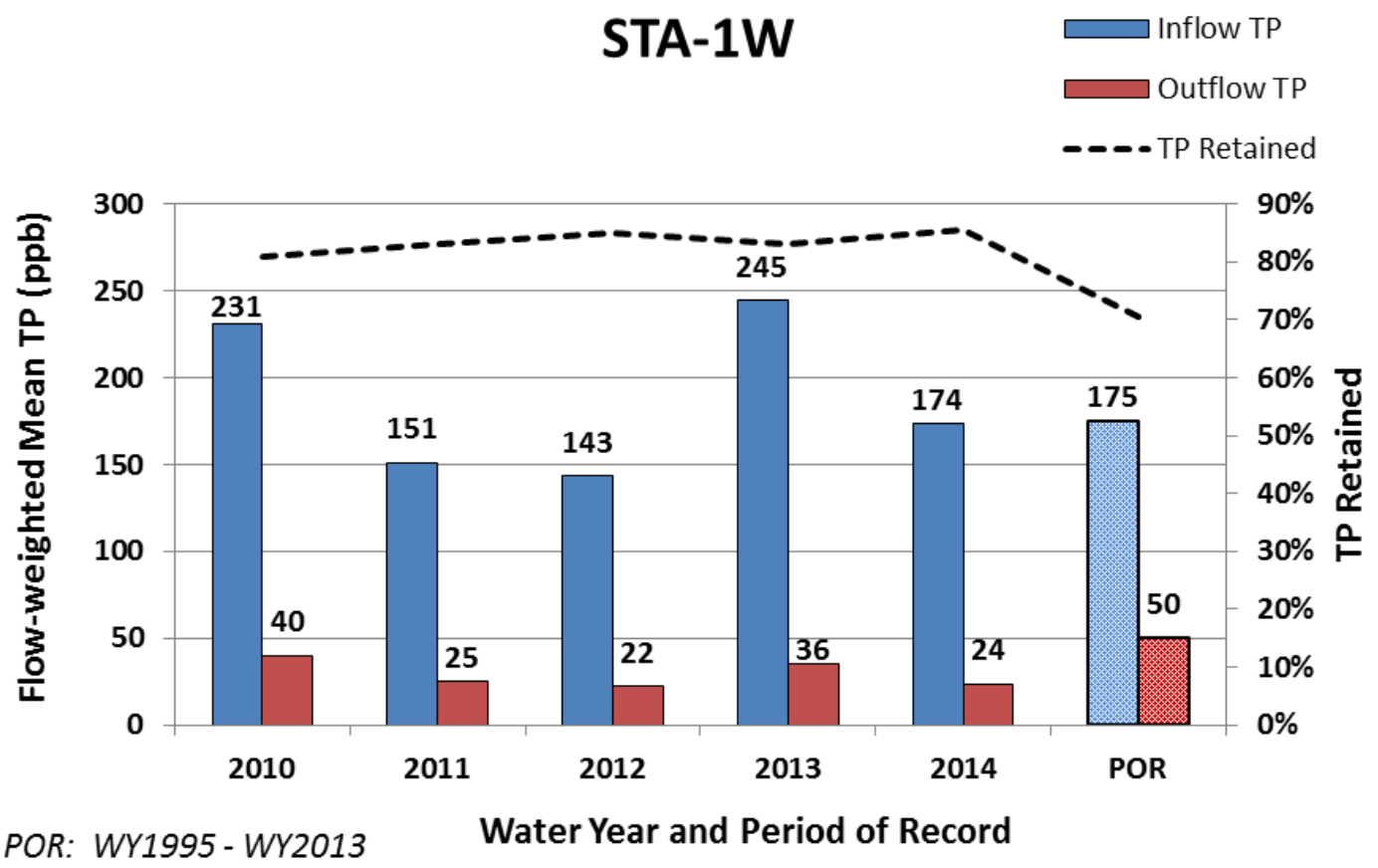



**Western Flow-way:**
- **EAV decline**

**Eastern Flow-way:**
- **EAV & SAV decline**
- **Plantings**

- Elevated water conditions resulting from TS Andrea
- Received Lake Okeechobee Regulatory Releases

# STA-1W




*POR: WY1995 - WY2013*

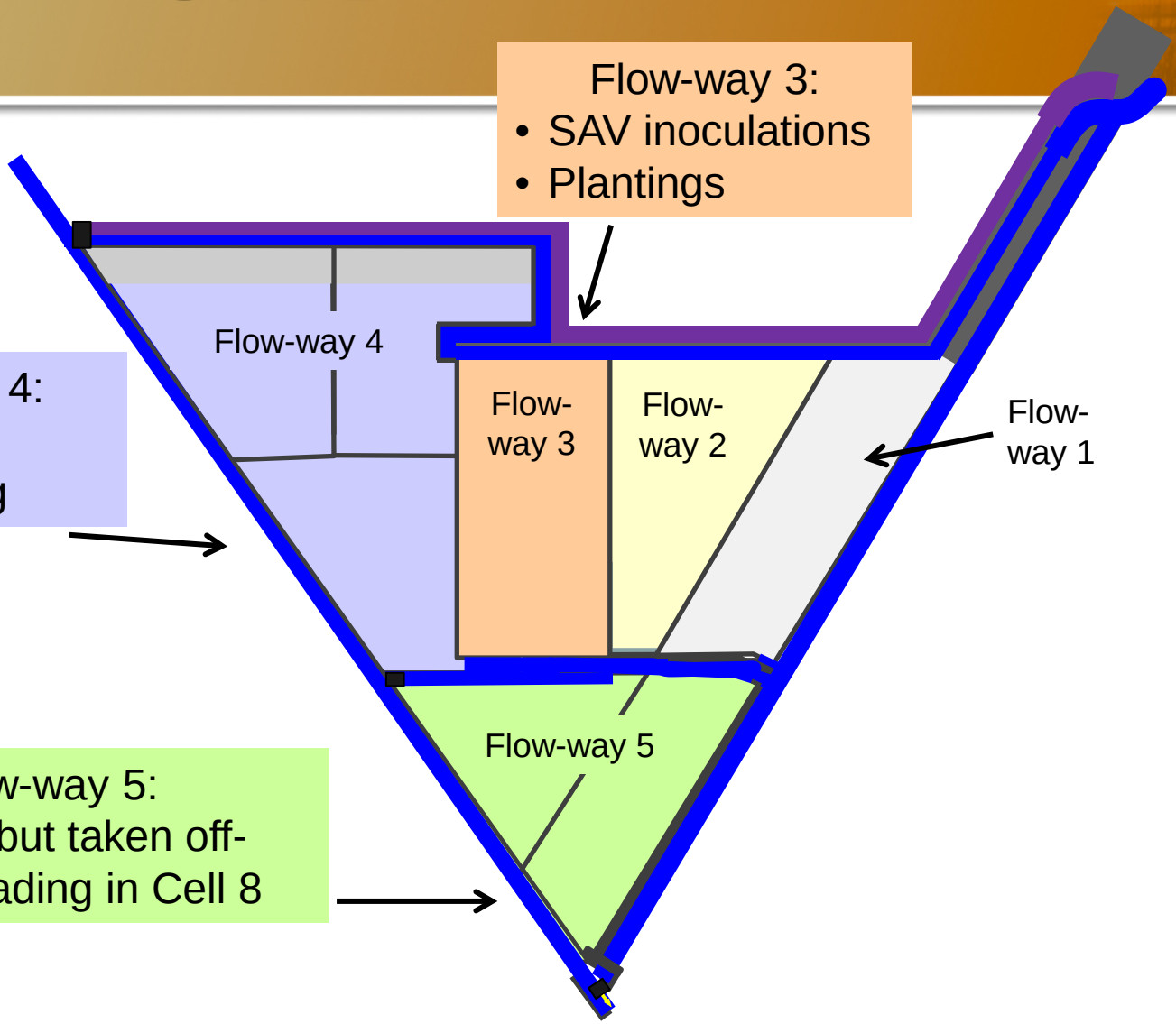
*Graph contains preliminary data.*

# STA-2

Flow-way 3:
- SAV inoculations
- Plantings

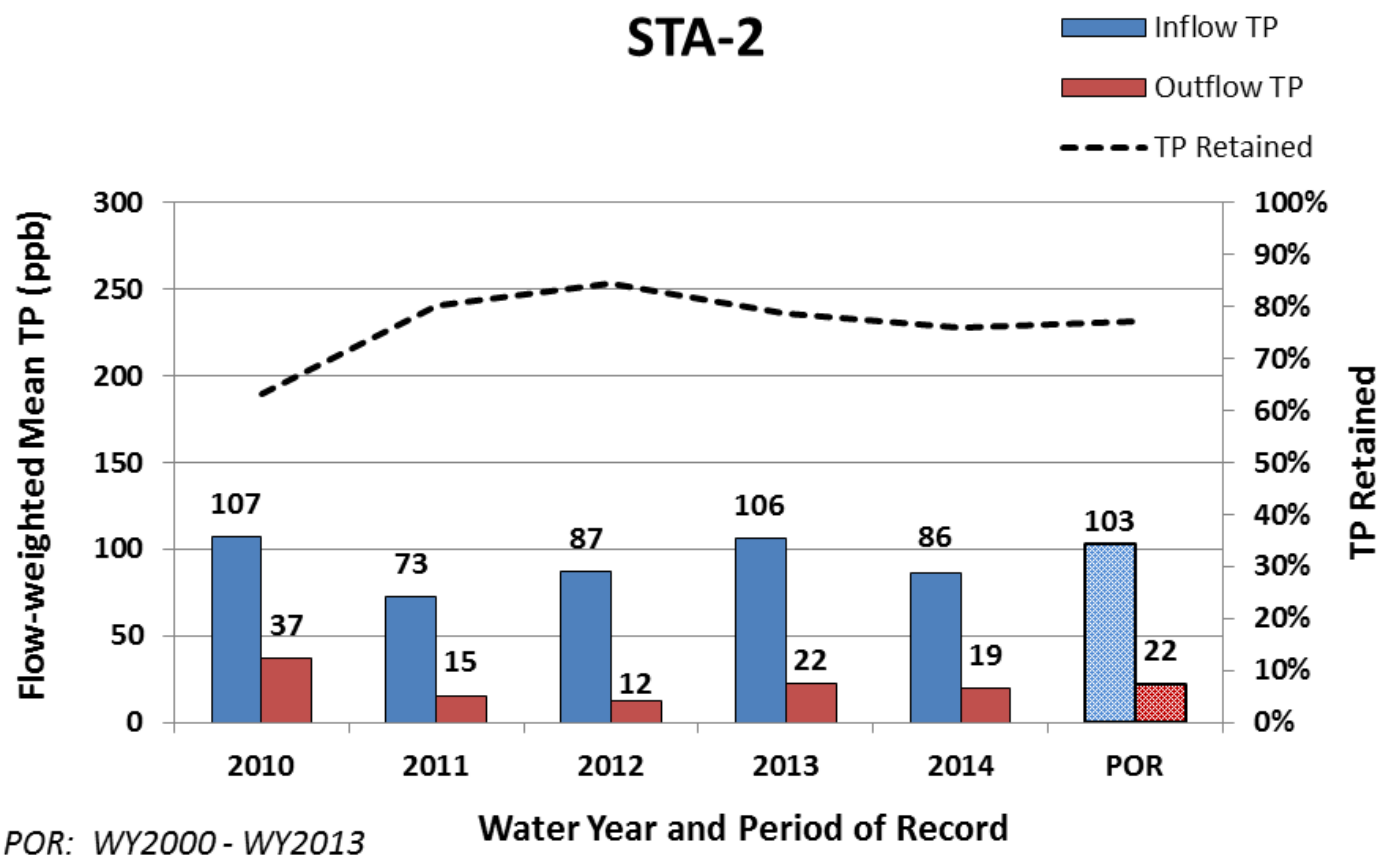
Flow-way 4:
- Vegetation establishing

Flow-way 5:
- Hydrated but taken off-line for grading in Cell 8




- Received Lake Okeechobee Regulatory Releases

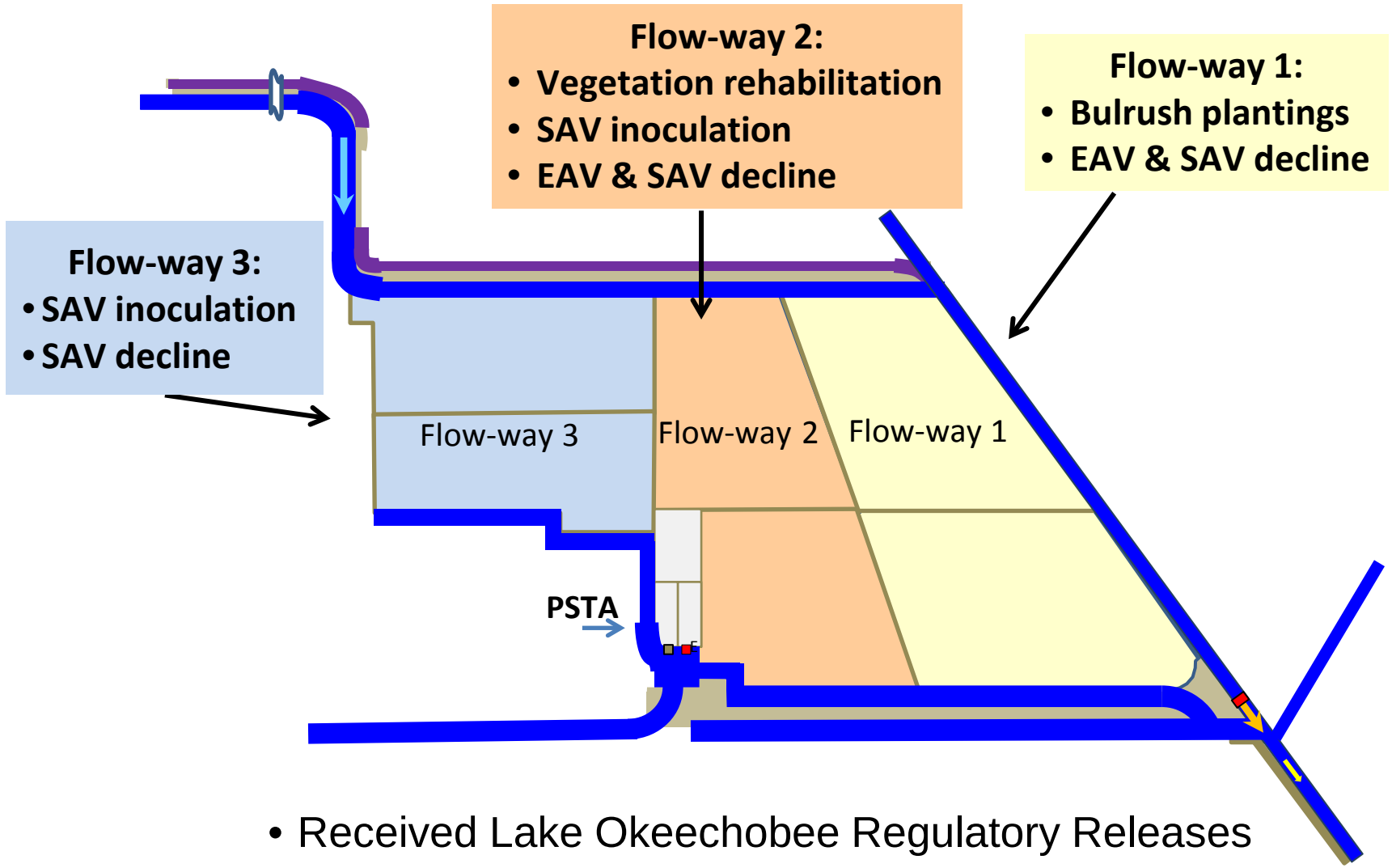
# STA-2




*POR: WY2000 - WY2013*

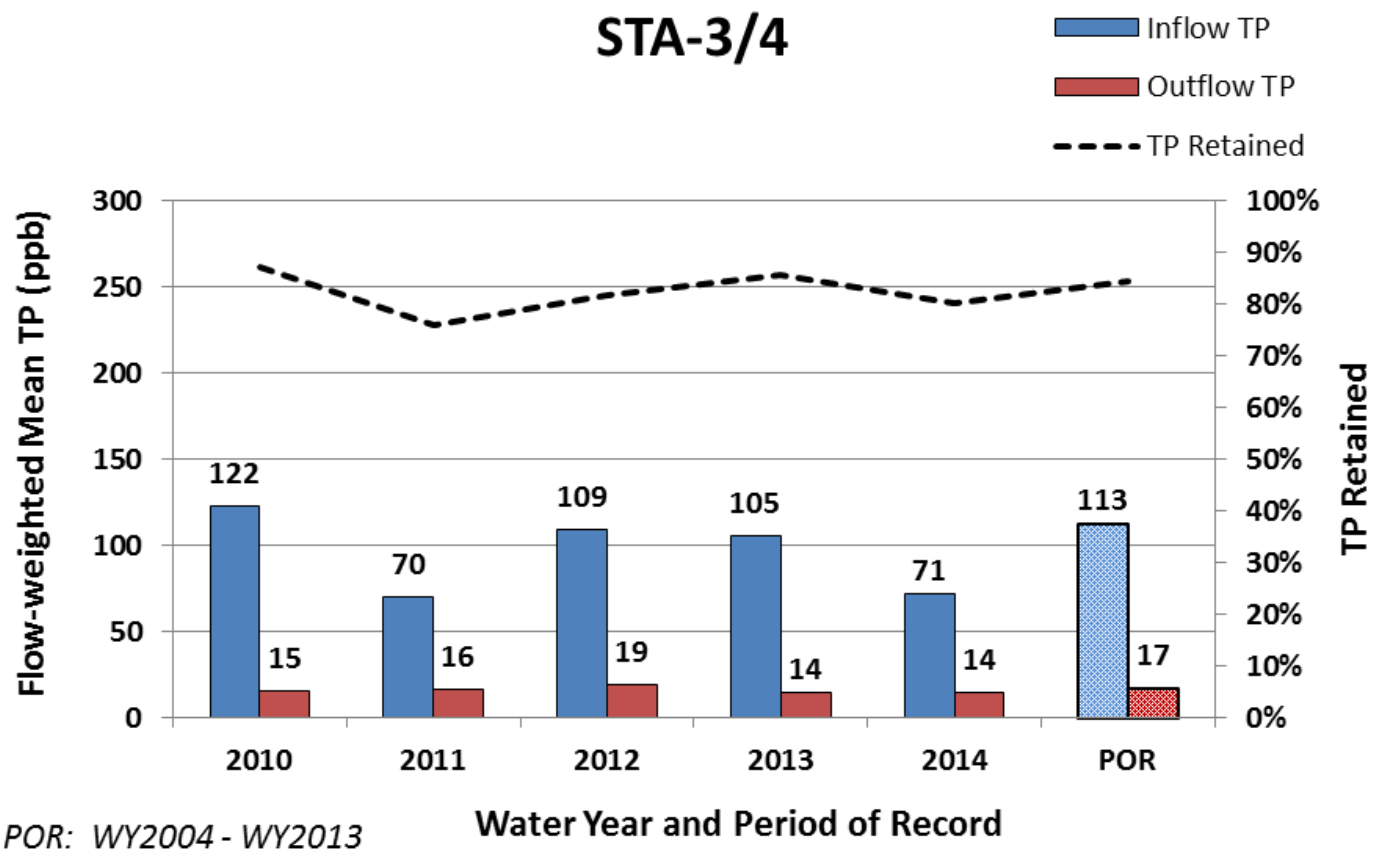
*Graph contains preliminary data.*

# STA-3/4




- Received Lake Okeechobee Regulatory Releases

# STA-3/4



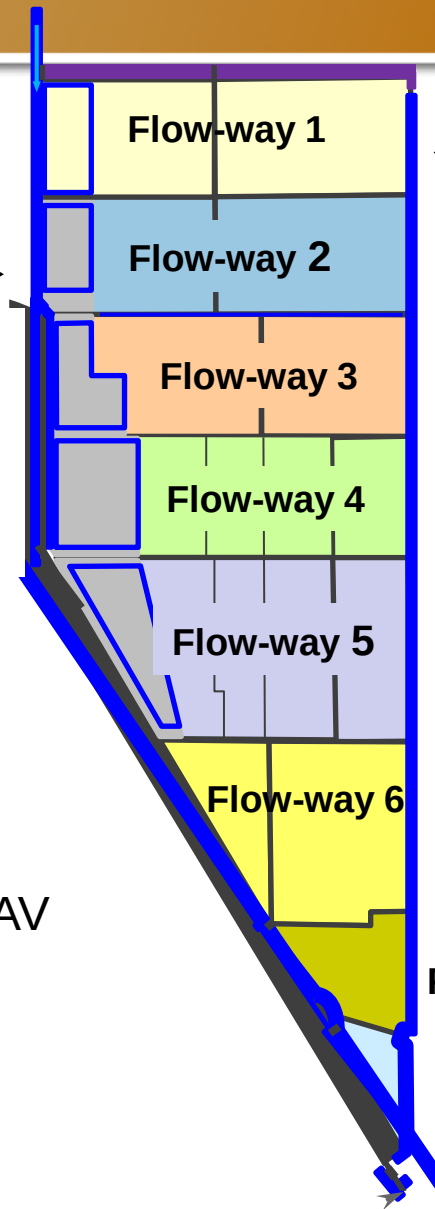

*POR: WY2004 - WY2013*

*Graph contains preliminary data.*

# STA-5/6

**Flow-way 2:**

- **SAV decline**




**Flow-way 1:**

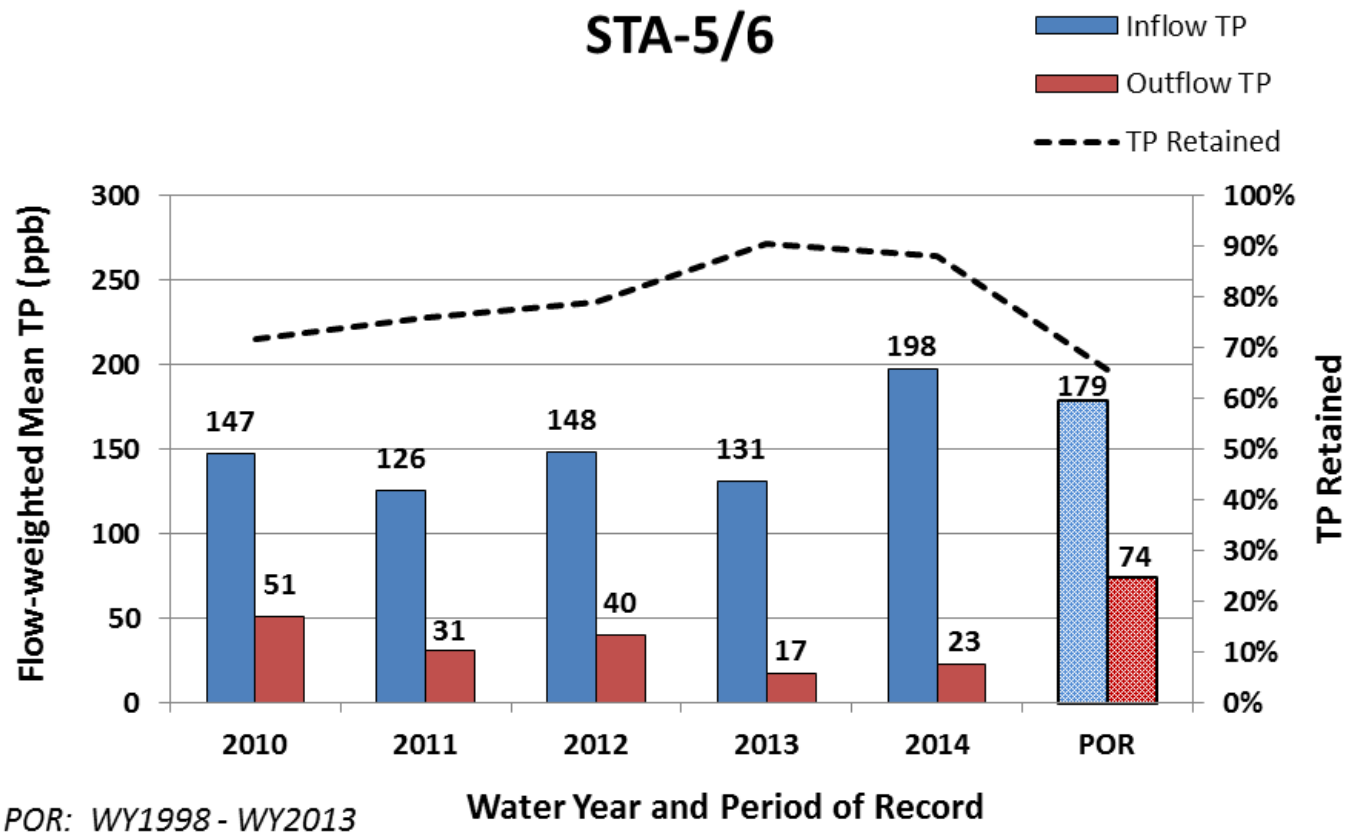
- **SAV decline**

Flow-ways 3, 4, 5, 6:

- Vegetation establishment
- Plantings

- Dryout conditions in most EAV cells during the dry season

# STA-5/6




*Graph contains preliminary data.*

# Discussion