

# Stormwater Treatment Areas

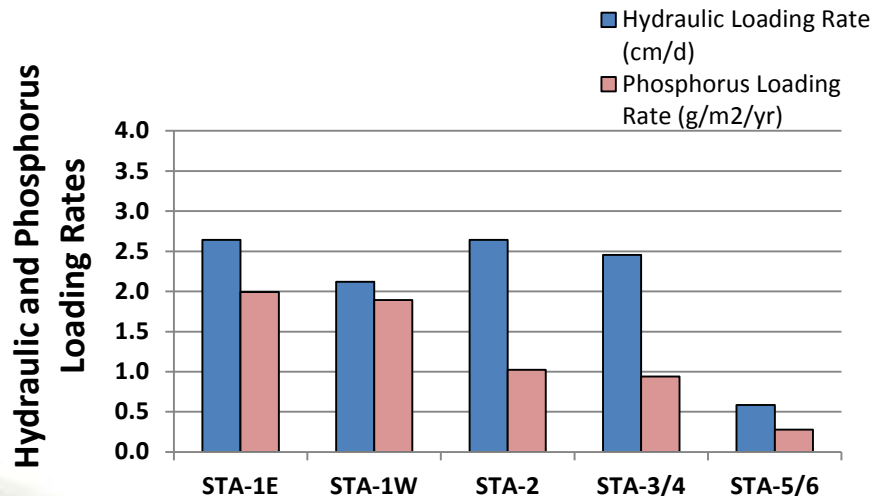
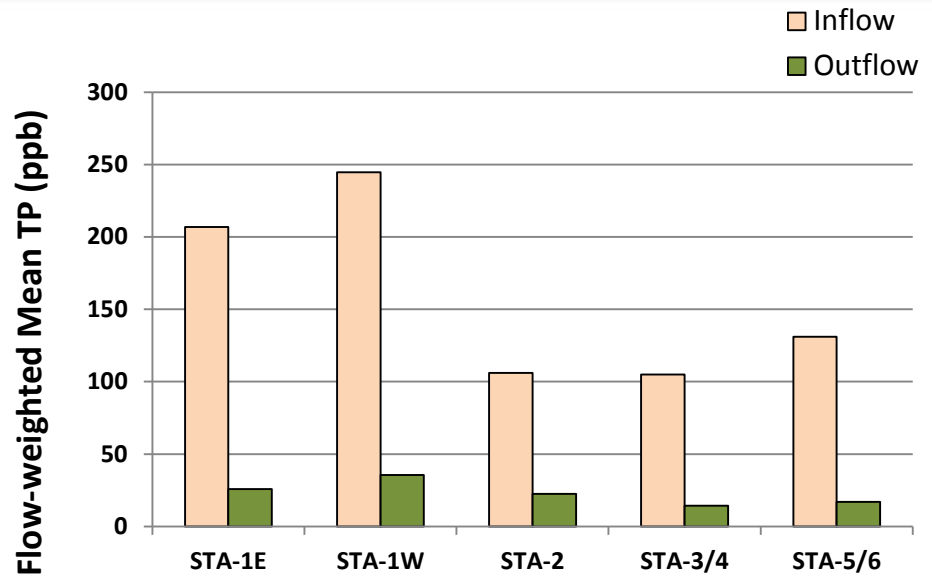
## Water Year 2013 (WY2013)

### Performance

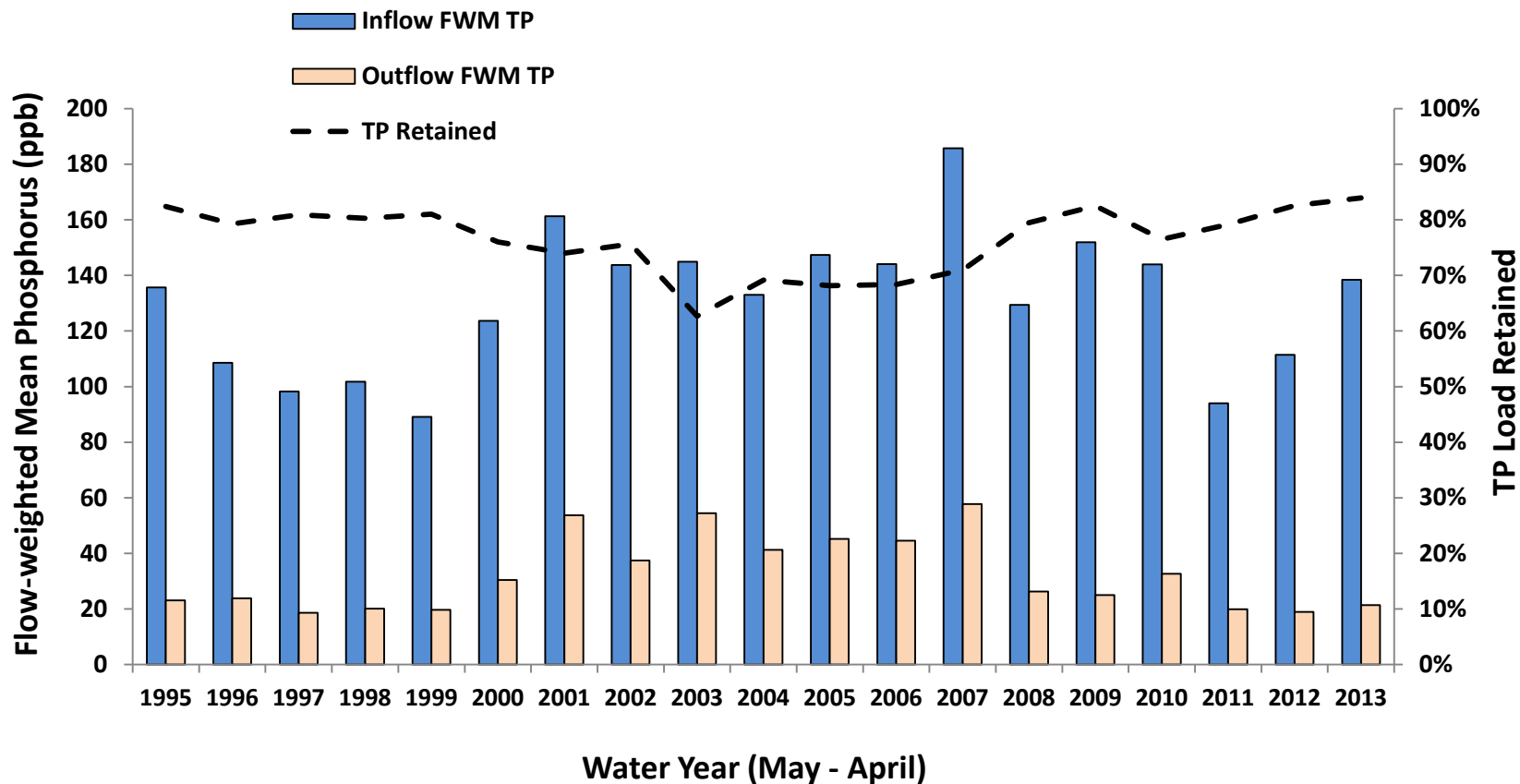
David Unsell, Section Administrator  
Water Quality Treatment Technologies  
Long-Term Plan Meeting, August 23, 2013

# WY2013: Annual Performance & Highlights

- New Flow-ways on-line in WY2013
  - STA-2 Flow-way 4
  - STA-5/6 Flow-way 4 & 6
- Dryout conditions in STA-5/6 beginning of the Water Year
- Tropical Storm Isaac Impact (August 2012)
- Inflow volume & loads ~2x higher compared to WY2012 (except STA-5/6 which was about the same)
  - Inflow TP 138 ppb
  - Outflow TP 21 ppb
  - 84% TP load retained



# Period of Record Performance



*WY2013 TP Load Reduction of 84% is highest on record*





# Vegetation Management Activities: Rehabilitation

Target water levels lowered  
(specific cells)

- Protect submerged aquatic vegetation (SAV)
- Allow for natural recruitment of vegetation
- Vegetation plantings
  - Existing treatment cells
  - Newly operational treatment cells



*Bulrush plantings in open water areas & vegetation strips in STA-1E, STA-1W, STA-3/4, and STA-5/6.*



# Migratory Bird Nesting

## Black-necked Stilts

- Nests found in all STAs, except STA-2

## Snail Kites

- Found in STA-1E & proximity of STA-5/6

## *Impact:*

- Inflows prioritized to protect nests
- Target stages established
- Operations & access restricted

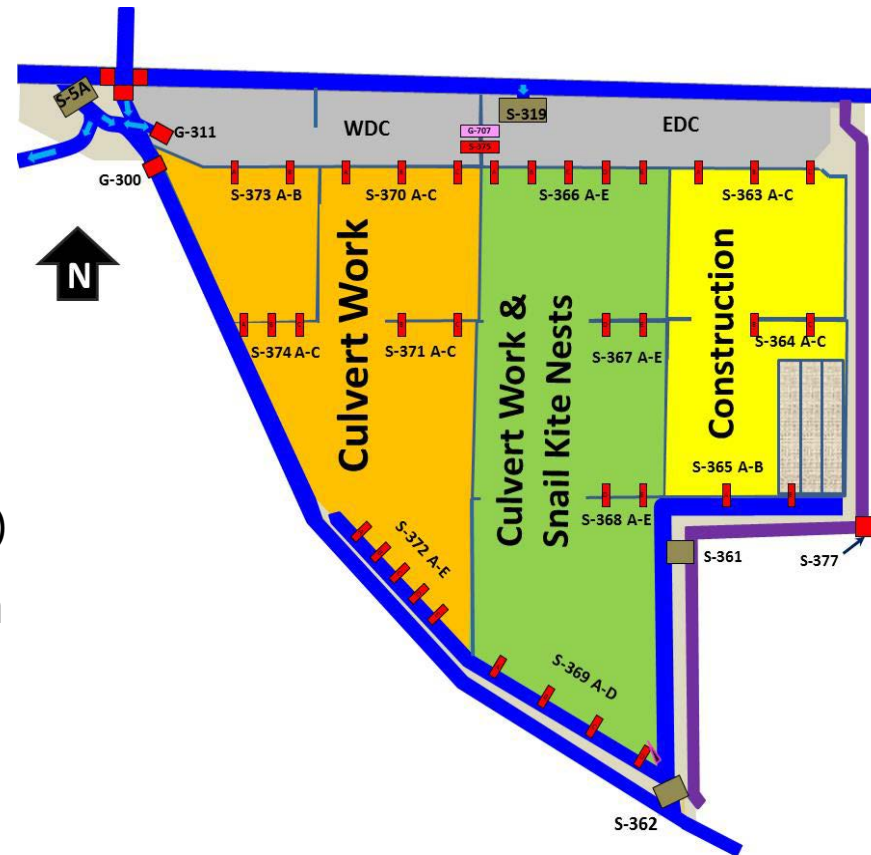


**Number and Location of Nests in WY2013**

Black-necked stilts					
	STA-1E	STA-1W	STA-2	STA-3/4	STA-5/6
Location	Cell 5	Cell 2B	-	PSTA	Cells that were not in operation
# Nests	9	5	0	5	11
Snail Kites					
	STA-1E	STA-1W	STA-2	STA-3/4	STA-5/6
Location	Cell 4N	-	-	-	500' of STA-5/6
# Nests	7	0	0	0	0

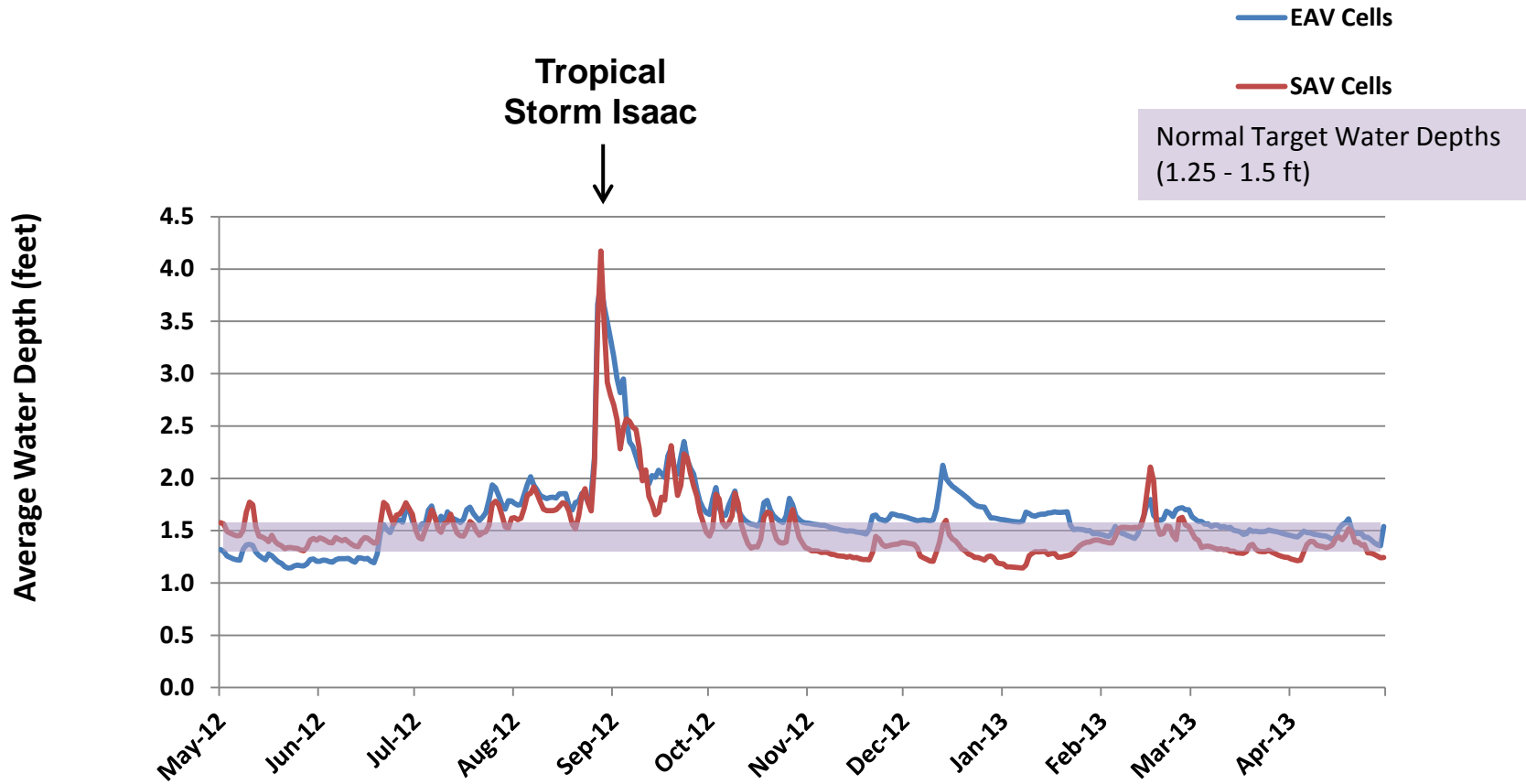
# STA-1E

- Structure repairs
- Central Flow-way restricted due to Snail Kite Nests
- Eastern Flow-way restricted due to decommissioning of PSTA project
- Vegetation Management
  - Target water levels set to protect submerged aquatic vegetation (hydrilla)
  - 800 acres of floating aquatic vegetation (FAV) & willow treated
  - 70-80 acres of bulrush planted

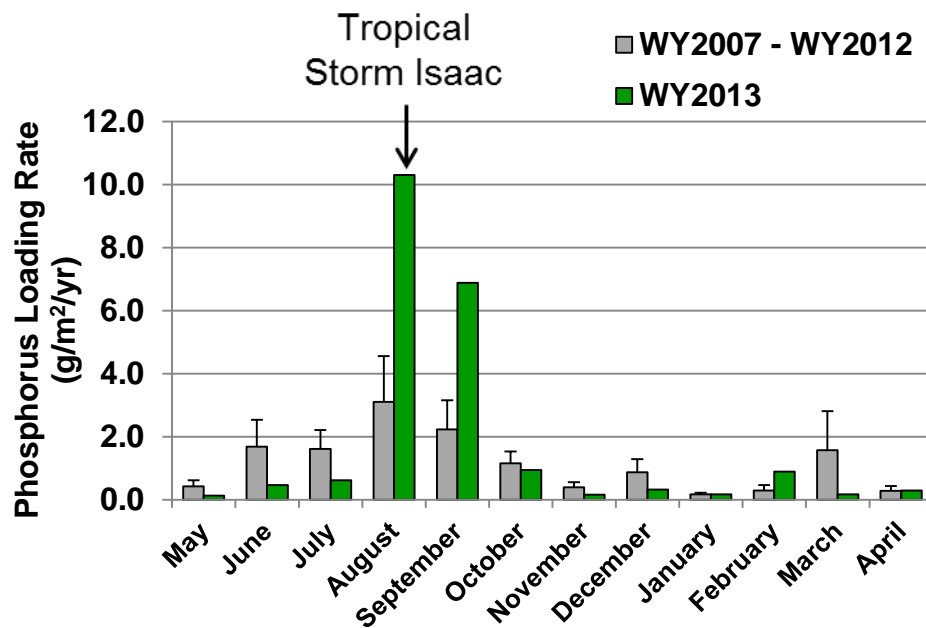
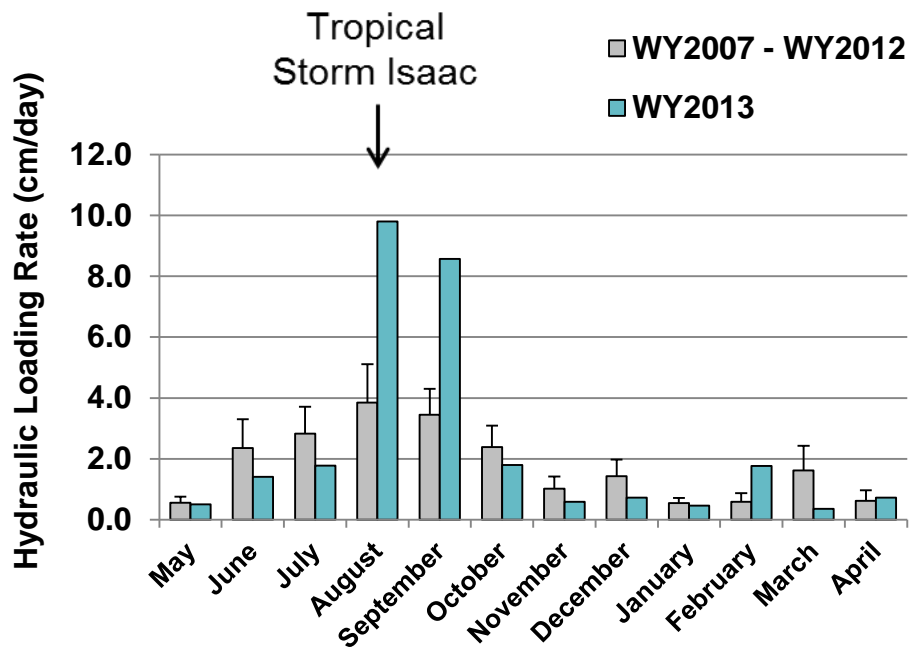




# STA-1E Water Levels



# STA-1E Hydraulic & Phosphorus Loadings

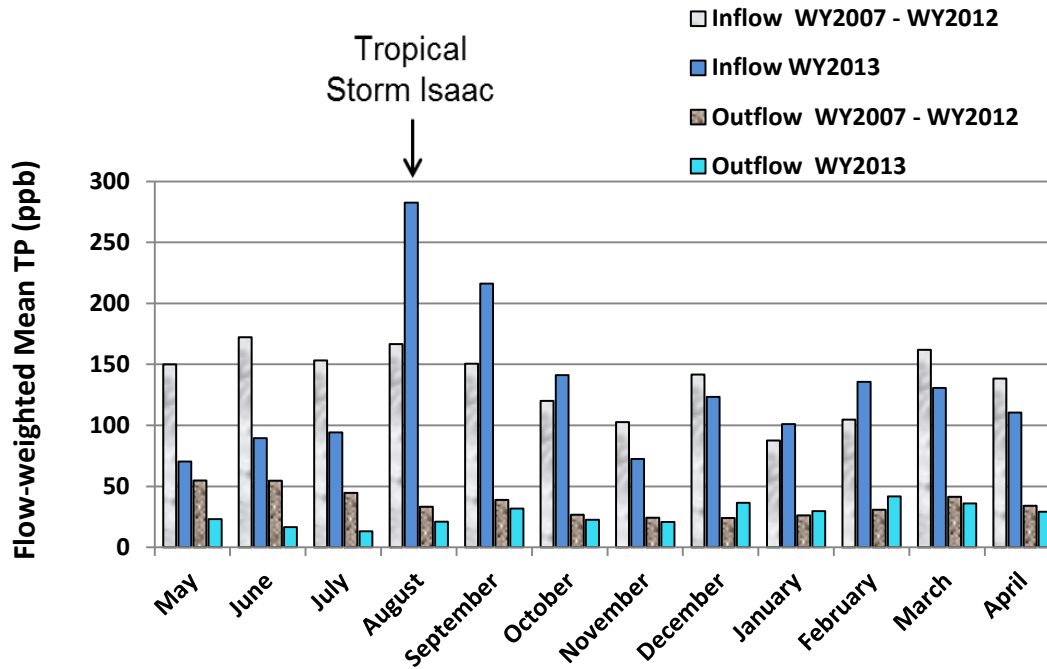


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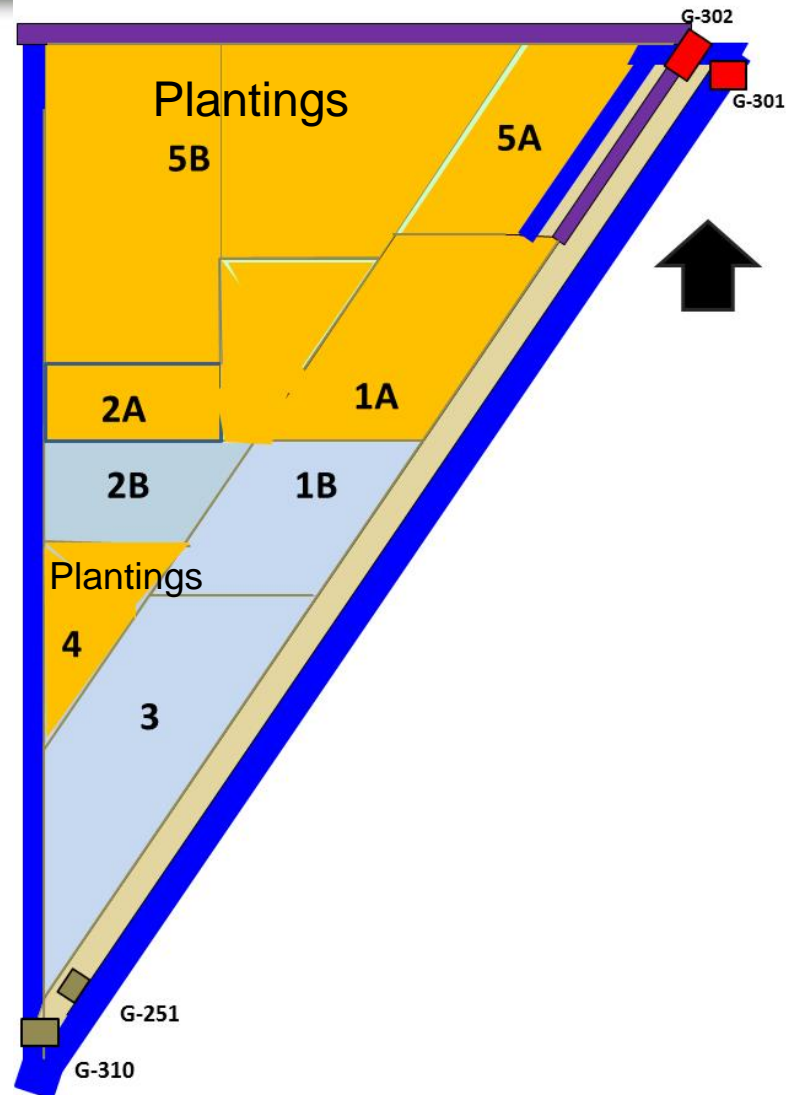


# STA-1E Phosphorus Concentrations

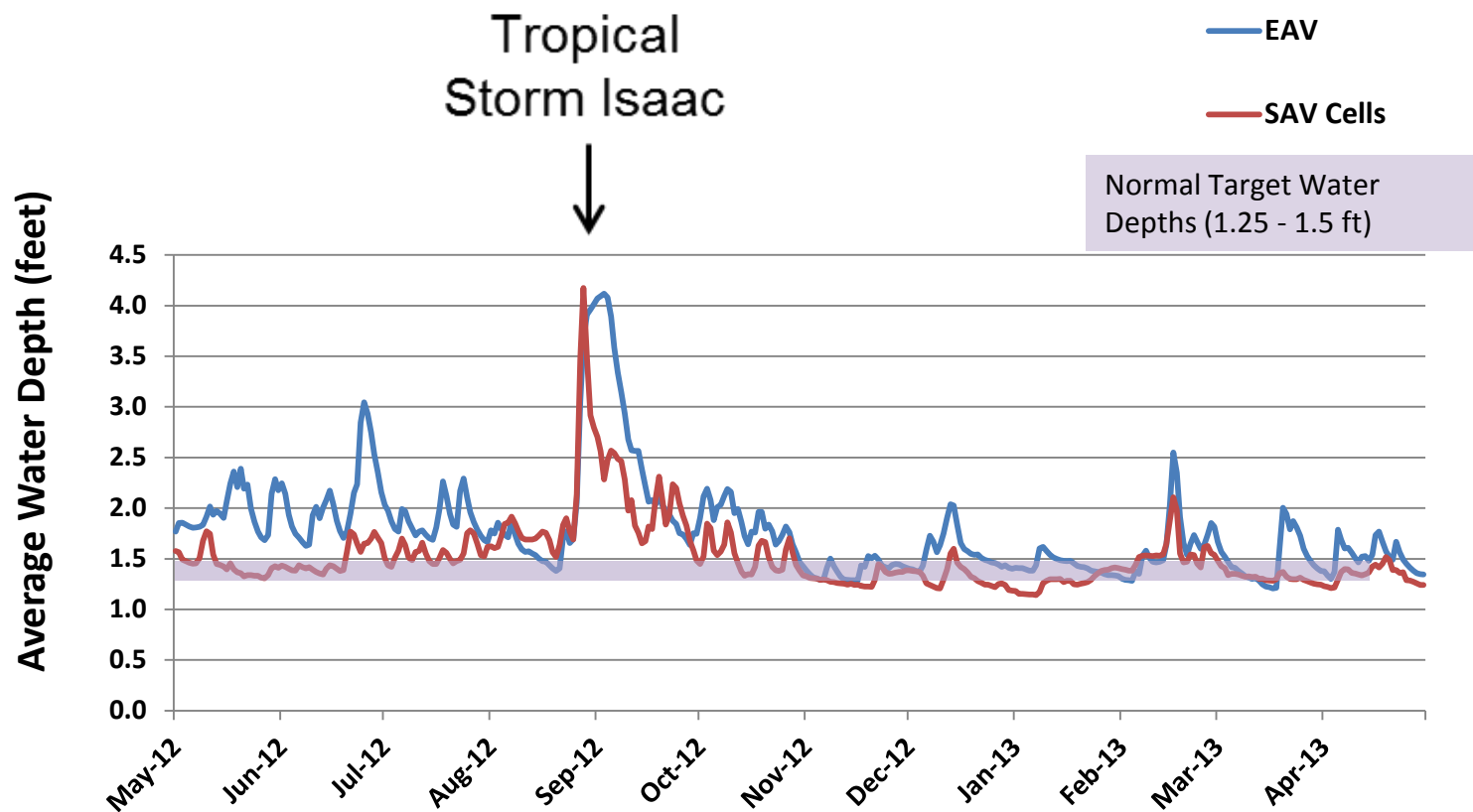


# STA-1W

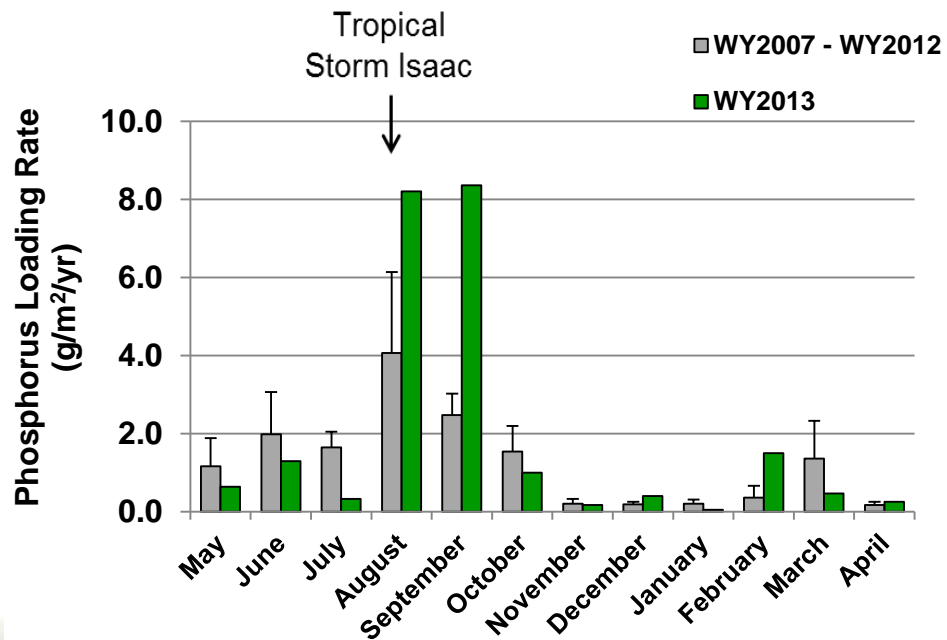
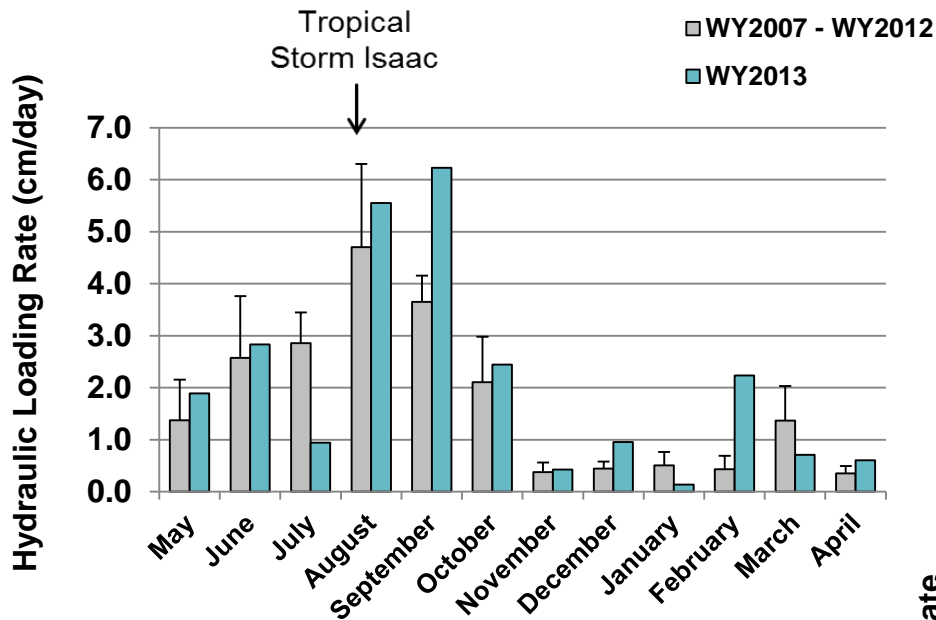
- Outflow G-251 off-line for weed rake repairs
- Vegetation Management:
  - 1,000 acres FAV treated
  - 250 acres of cattail treated supporting conversion or expansion of additional SAV
  - Plantings
    - Bulrush in Cells 1A, 2A, 4, 5A, & 5B
    - SAV Inoculation Cell 4



# STA-1W Water Levels



# STA-1W Hydraulic & Phosphorus Loadings

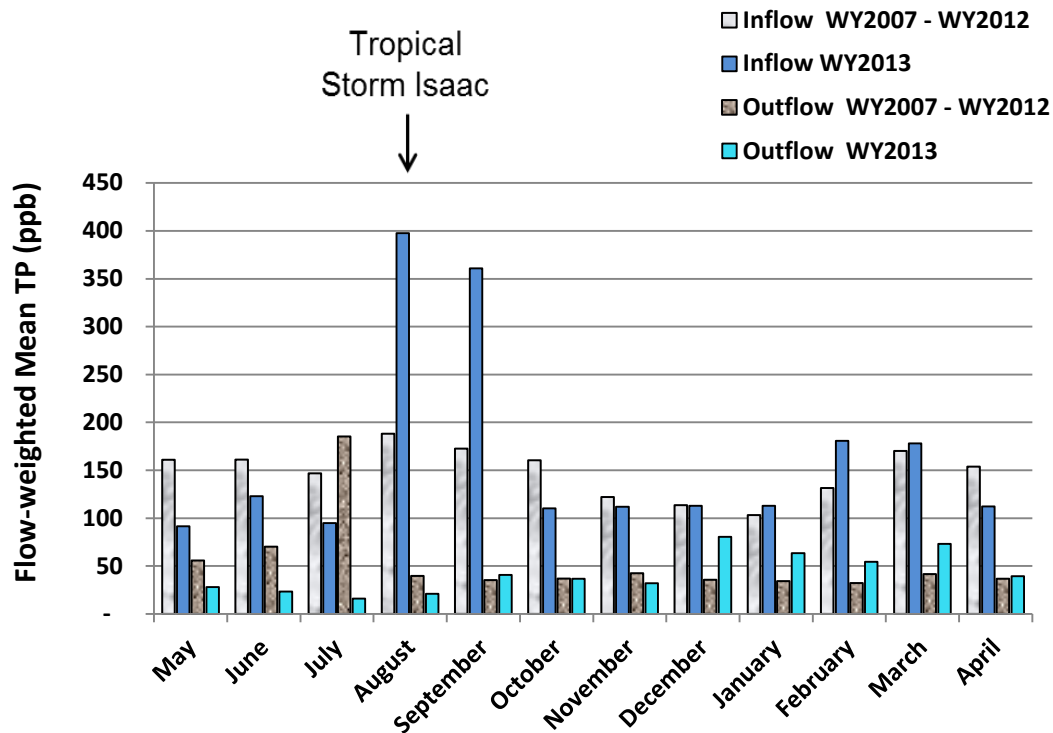


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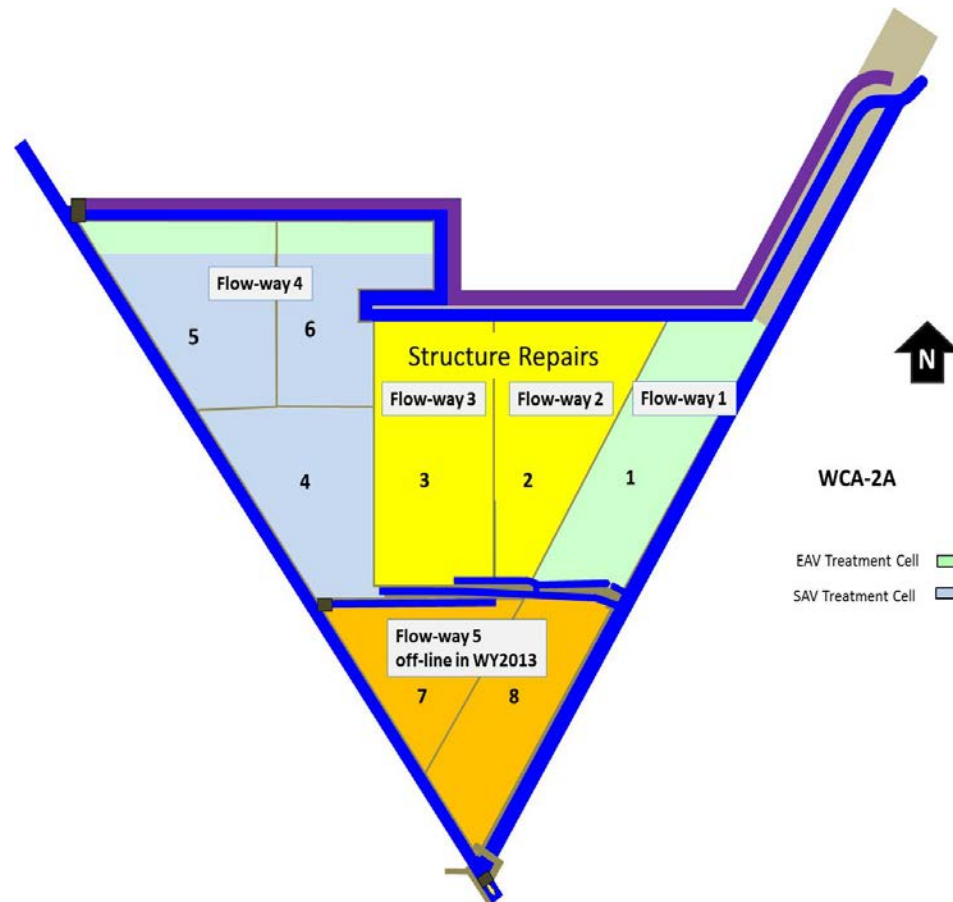


# STA-1W Phosphorus Concentrations

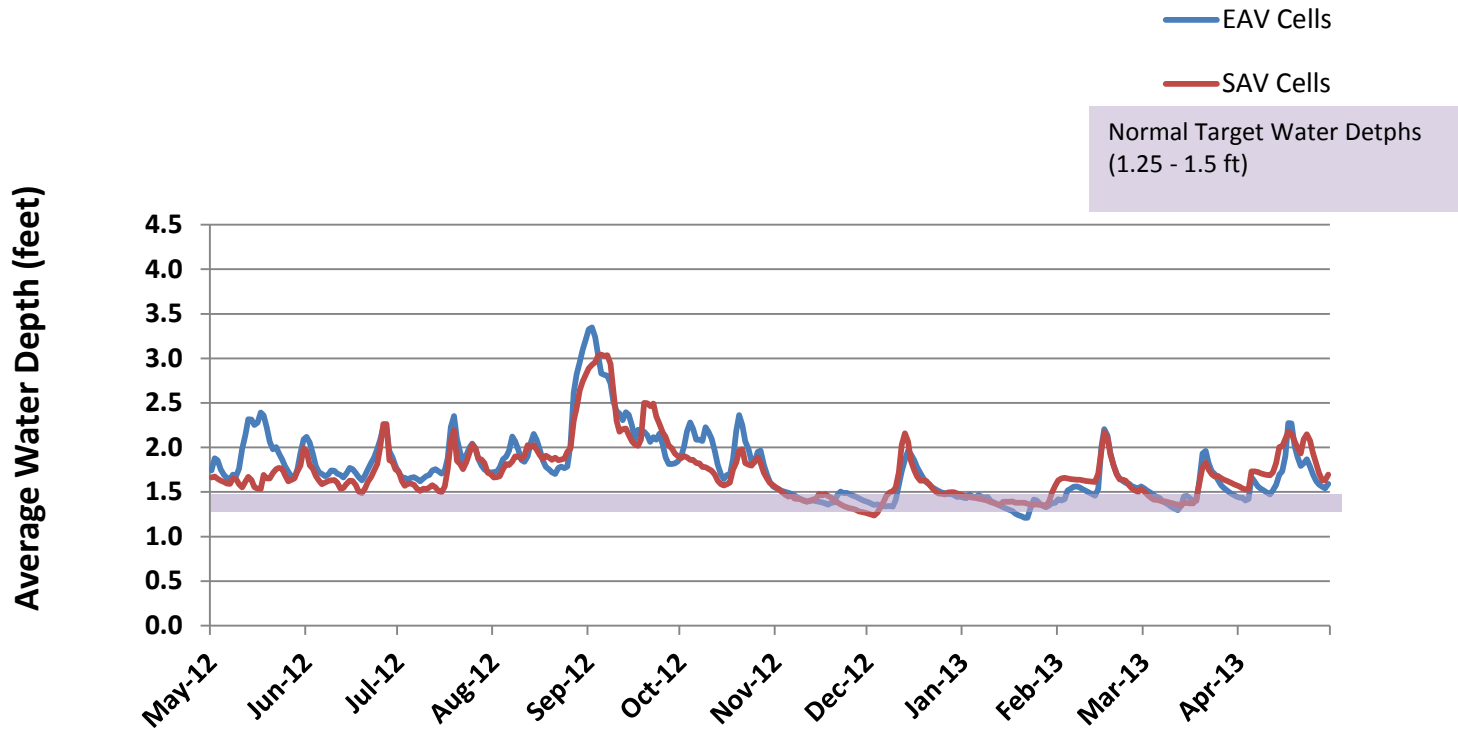


# STA-2

- Flow-way 4 on-line September 2012
  - Flow-way 5 off-line in WY2013
- Structure Repairs Cells 2 & Cell 3 Inflows
- Vegetation Management
  - >1500 acres of cattail treated for SAV conversion
  - 2,800 acres of willow treated in Flow-way 4



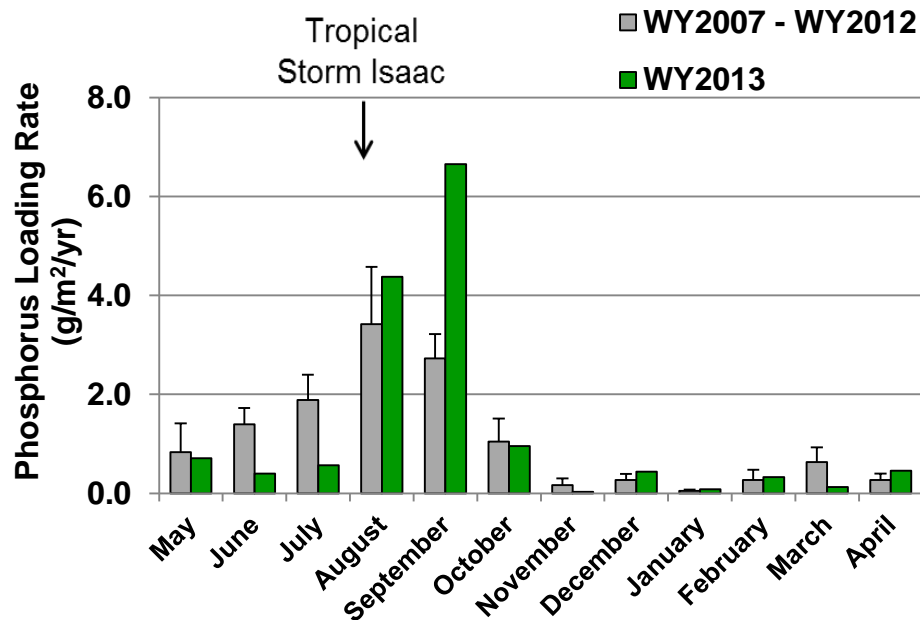
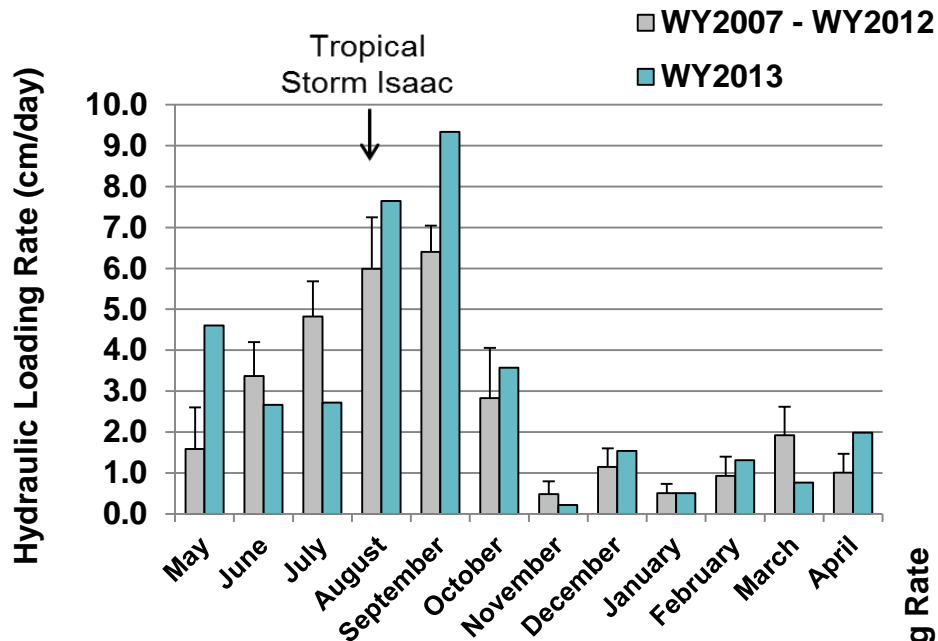
# STA-2 Water Levels



Graph excludes Flow-way 5 which was off-line in WY2013



# STA-2 Hydraulic & Phosphorus Loadings

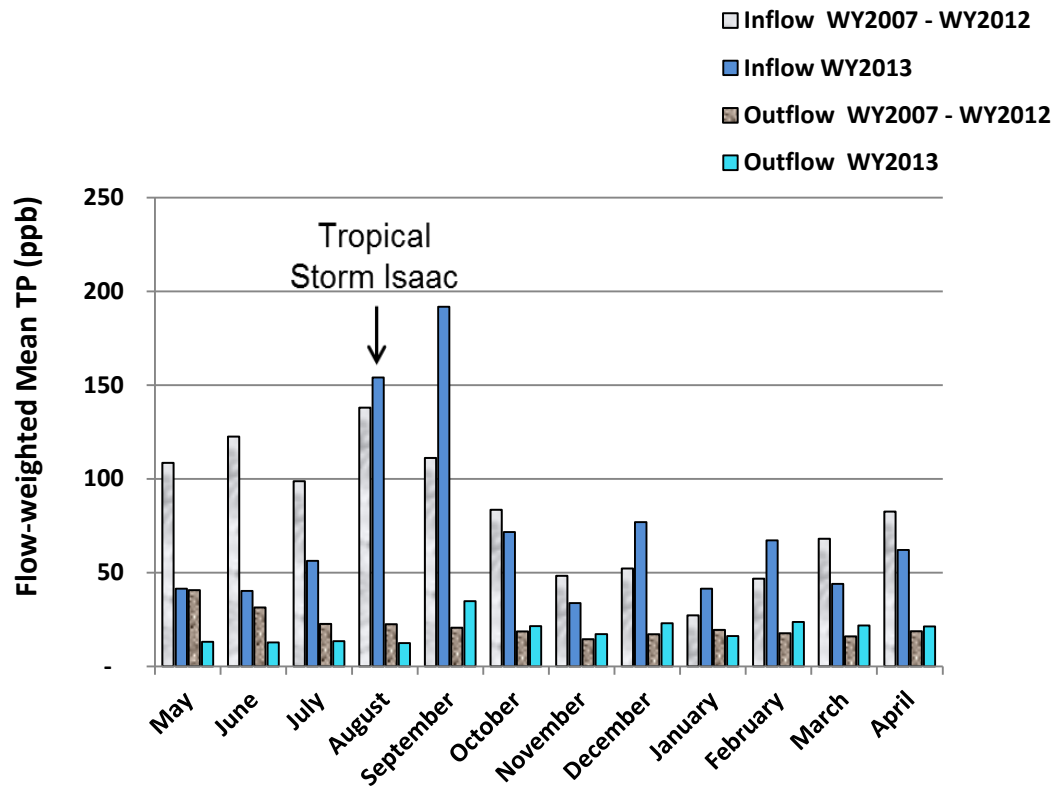


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# STA-2 Phosphorus Concentrations



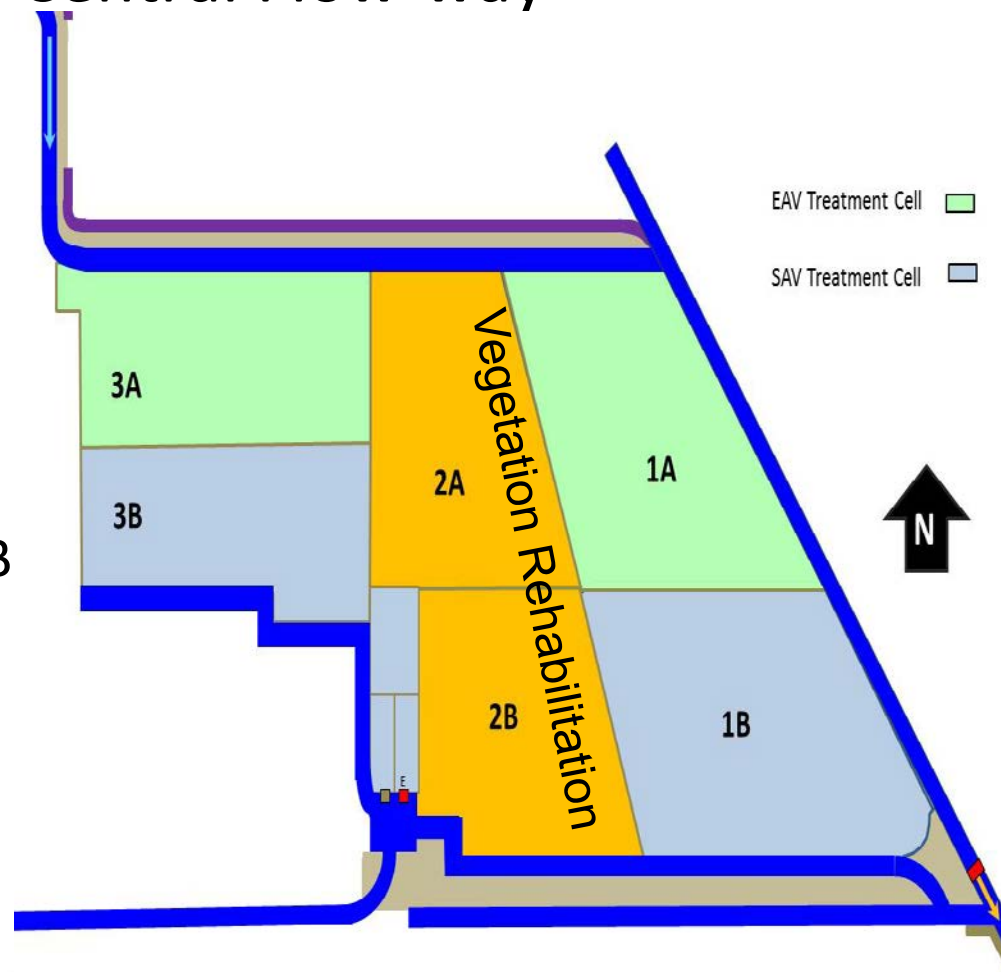
# STA-3/4 Highlights

## ■ Vegetation rehabilitation in Central Flow-way

- Water levels lowered
- Bulrush planted
- Natural recruitment Cattails

## ■ Vegetation Management:

- 280 acres FAV in Cell 1A
- 790 acres cattail in Cell 1B
- 500 acres cattail in Cells 2B & 3B



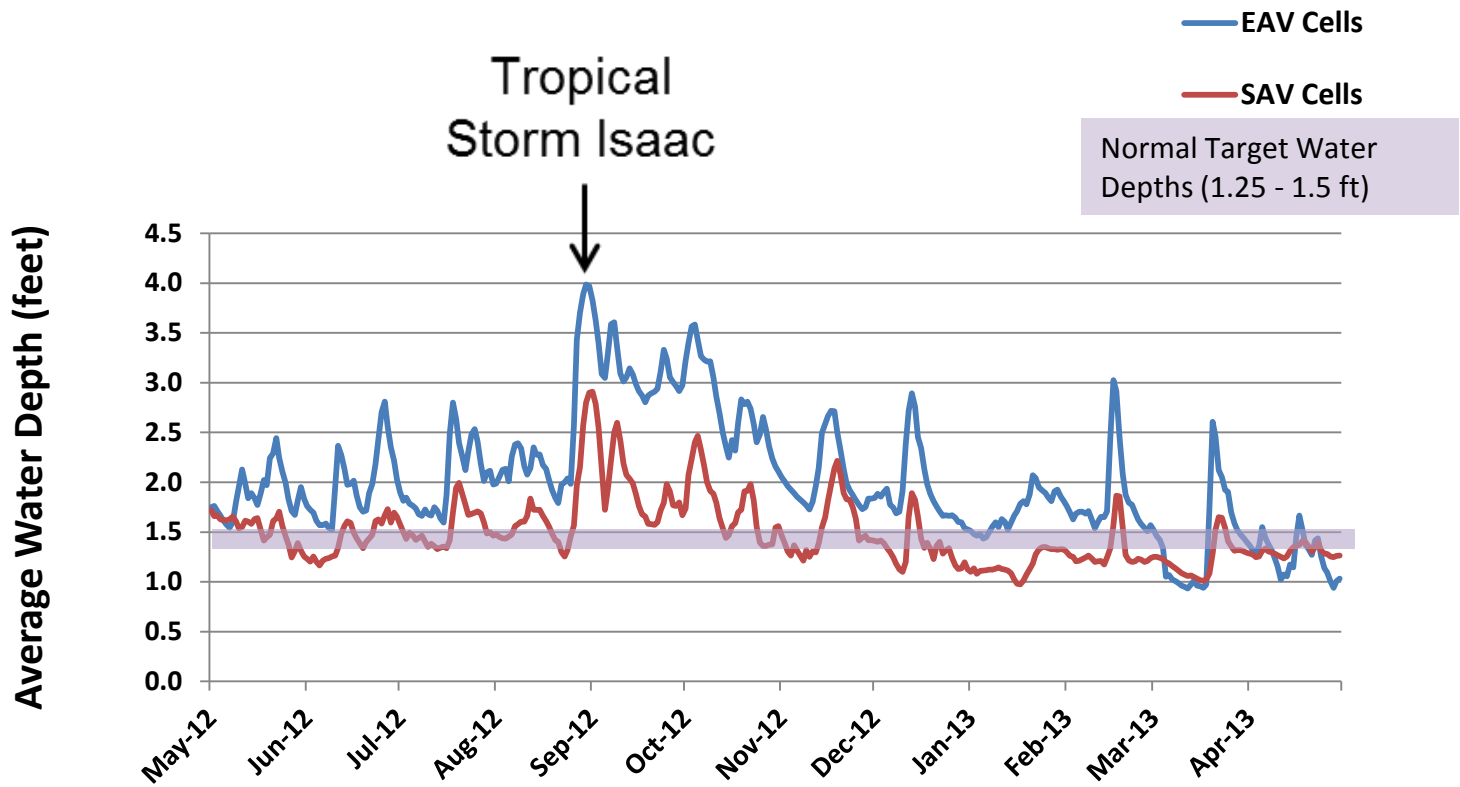
# STA-3/4 Bulrush Plantings



*Bulrush planted in open water areas or areas devoid of vegetation improve phosphorus removal efficiency.*

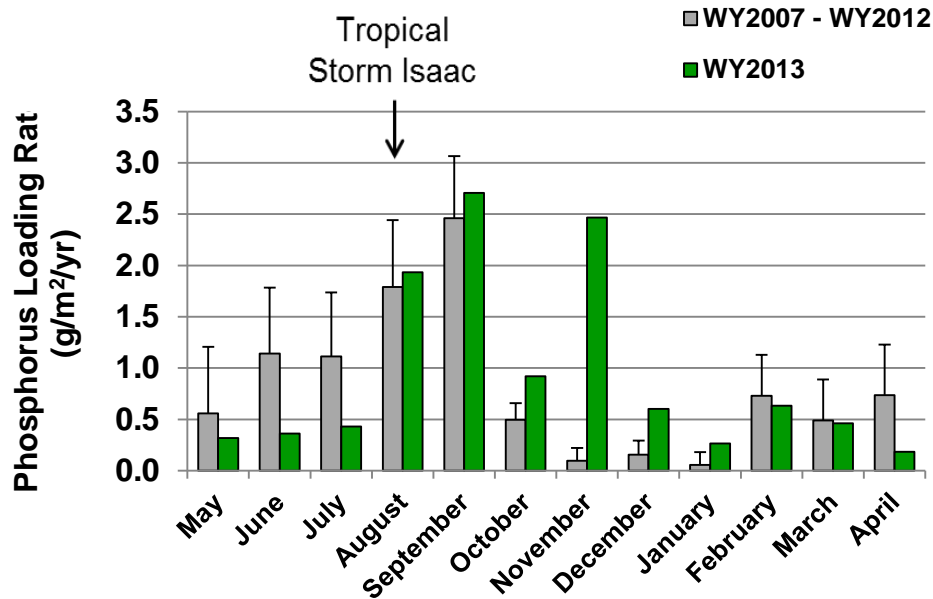
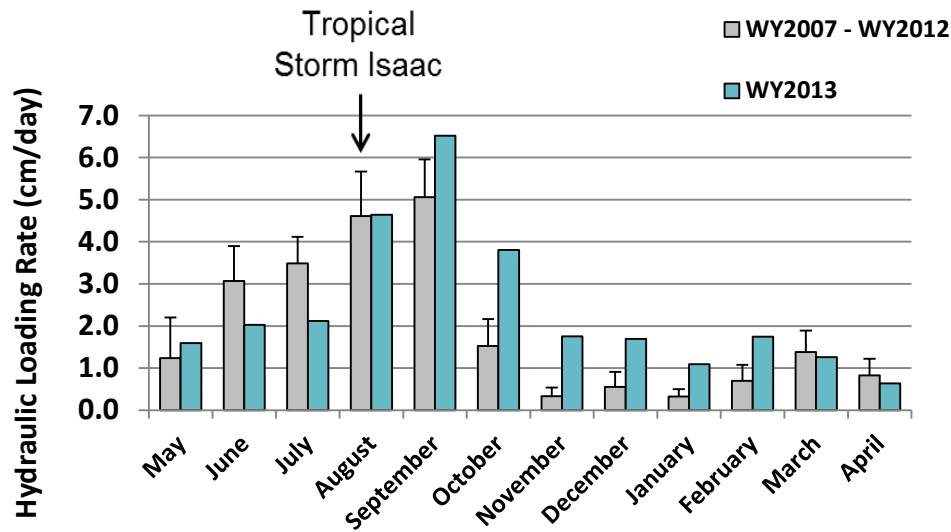


# STA-3/4 Water Depths





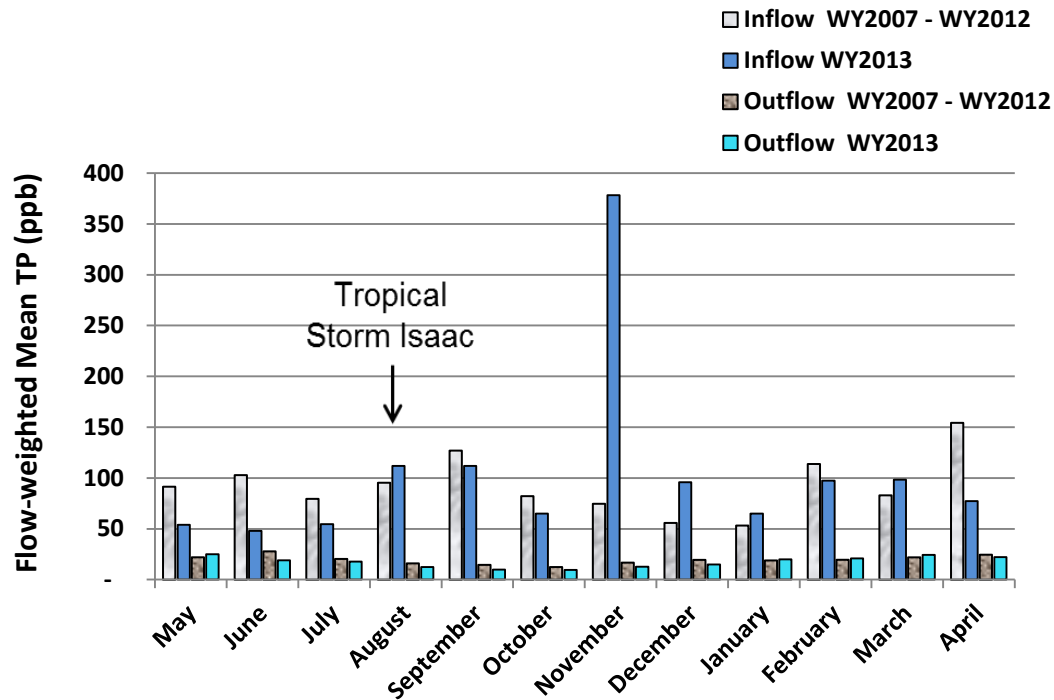
# STA-3/4 Hydraulic & Phosphorus Loadings



Standard Error bars shown.

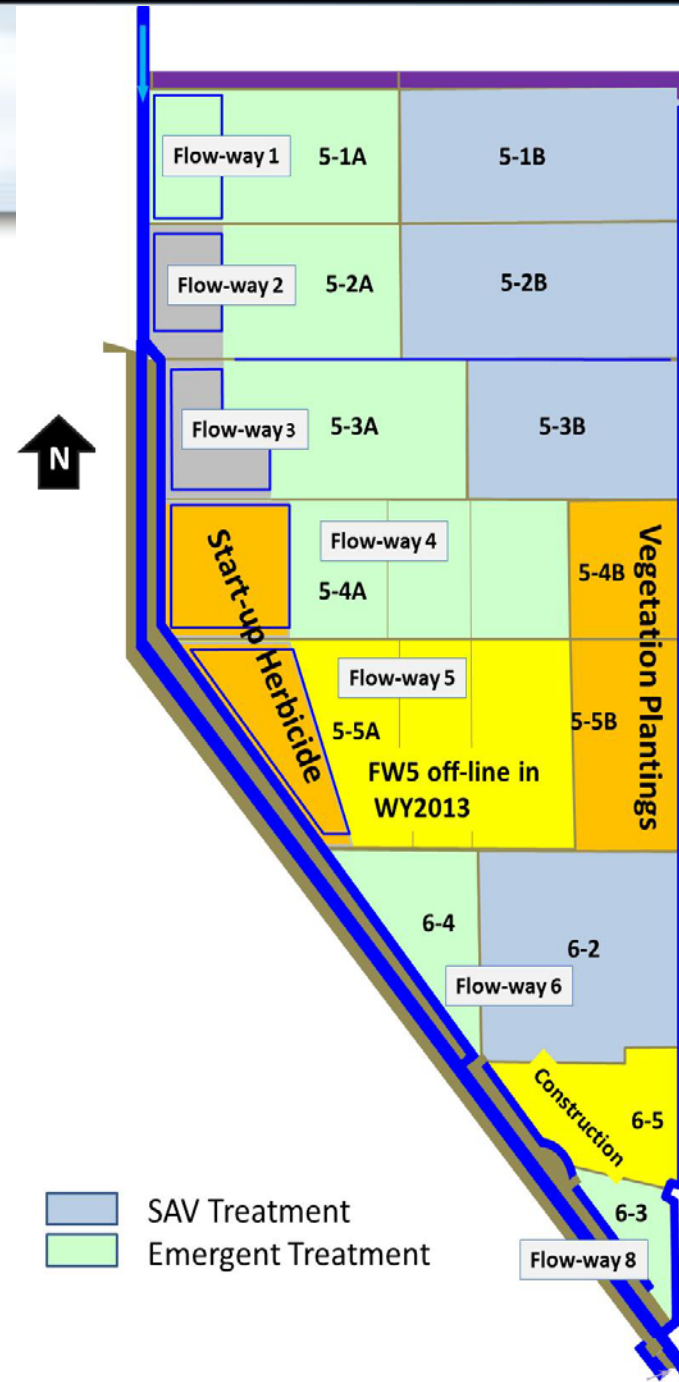


# STA-3/4 Phosphorus Concentrations



# STA-5/6 Highlights

- Flow-ways 4 & 6 on-line December 2012
- Cell 6-5 off-line redundant levee removal (April 11 – Oct 1, 2012)
- EAV Cells dry (Feb – Jul/Aug 2012)
  - Supplemental water deliveries used to hydrate existing & new SAV Cells
- Vegetation management
  - Herbicide newly constructed cells
  - SAV inoculation Cells 5-3B & 5-4B



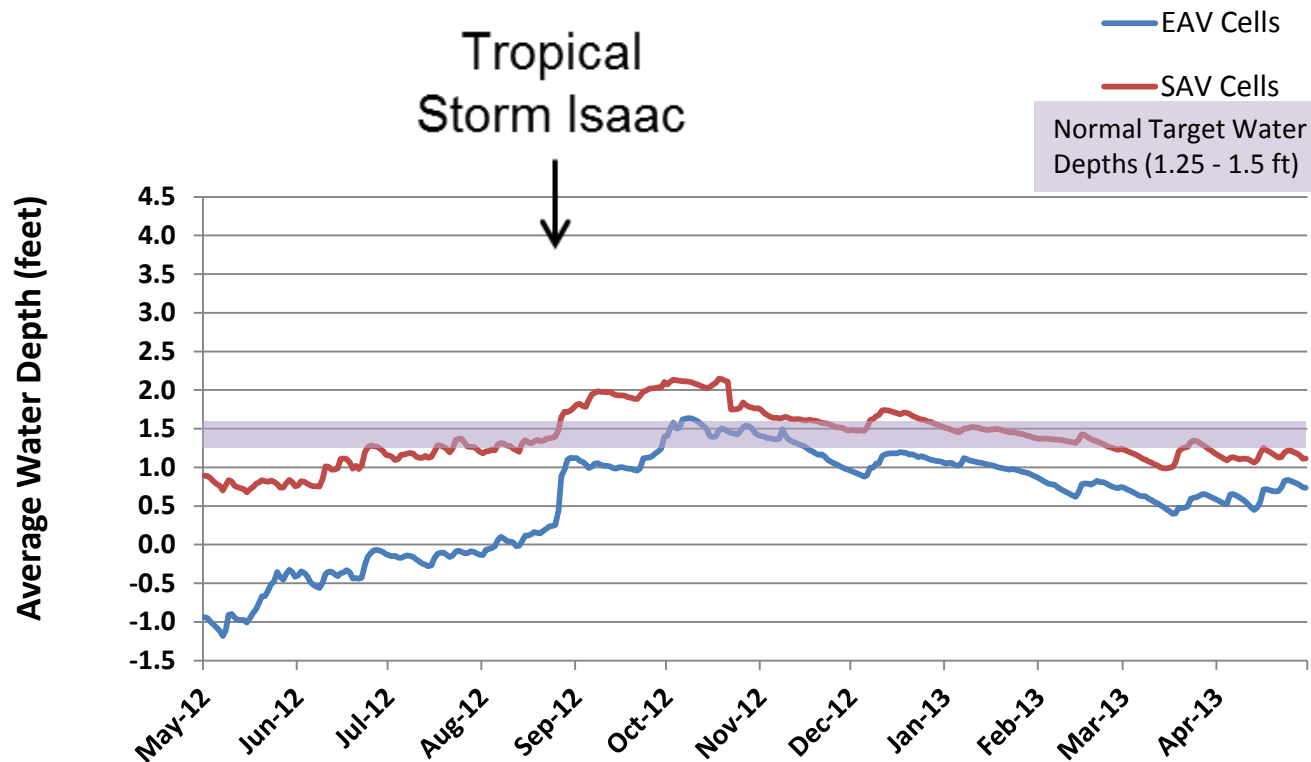
# STA-5/6 Compartment C



*Aerial inoculation of submerged aquatic vegetation in Cells 5-3B and 5-4B (left); and the new Compartment C inflow pump station G-508 (right).*



# STA-5/6 Water Depths

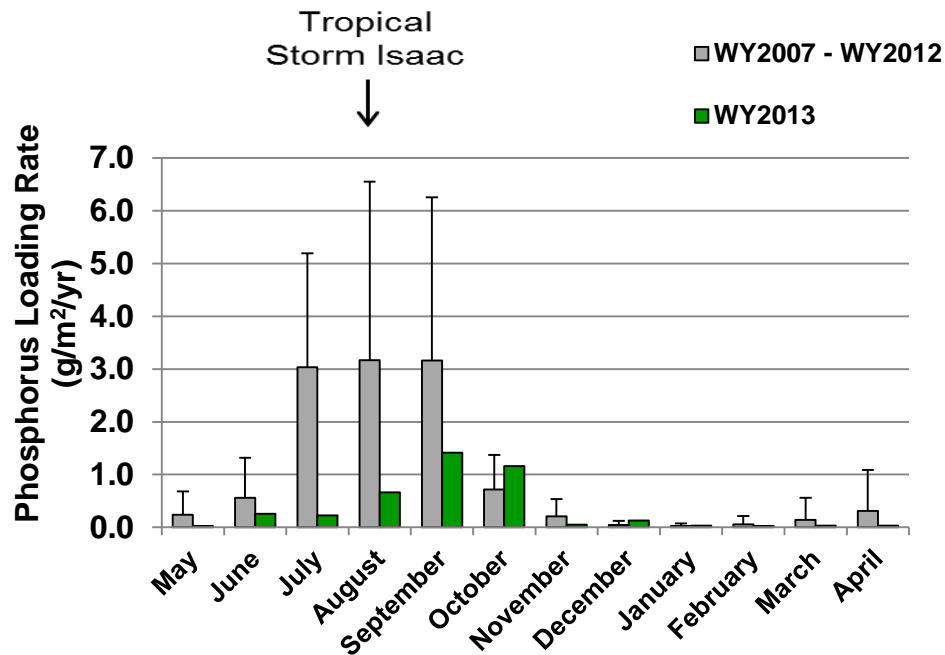
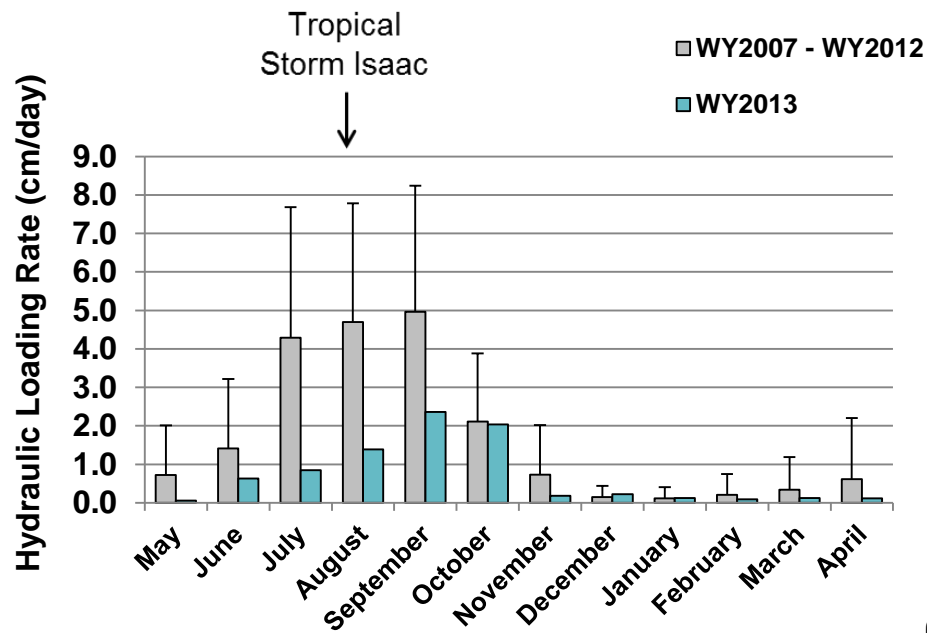


Graph excludes Flow-way 5 which was off-line in WY2013





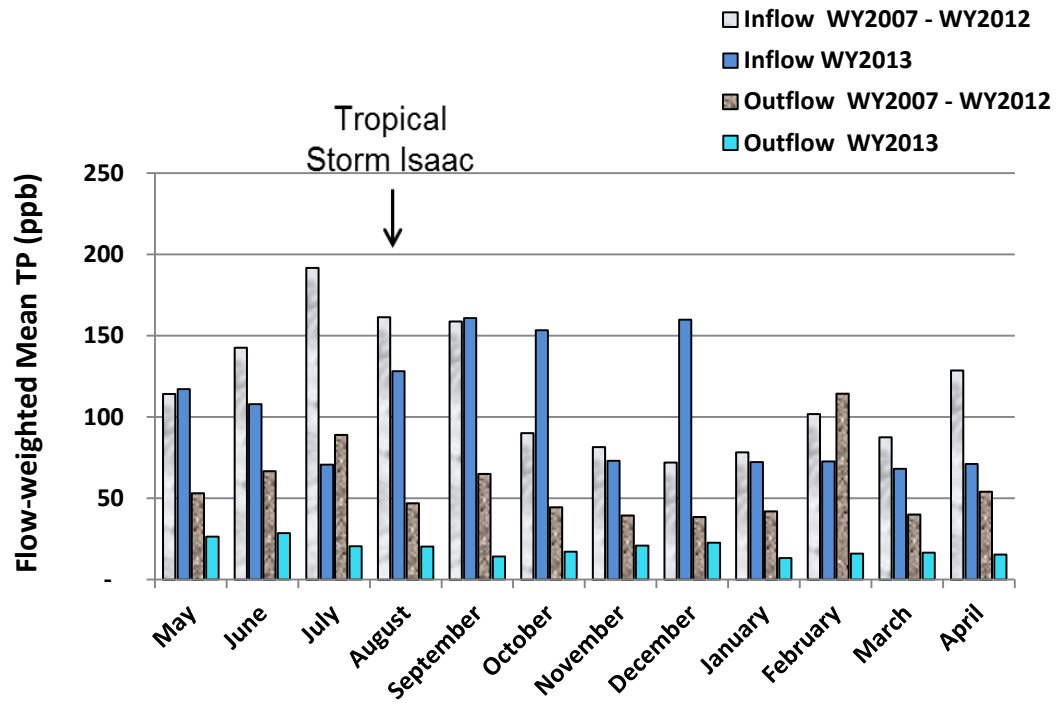
# STA-5/6 Hydraulic & Phosphorus Loadings



Standard Error bars shown.



# STA-5/6 Phosphorus Concentrations



# Discussion

